IMPACT OF ACCULTURATION, ETHNIC IDENTITY AND PEER INFLUENCE ON SUBSTANCE USE, DEPRESSION, AND SELF-ESTEEM IN MIDDLE SCHOOL STUDENTS

by

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A dissertation submitted to the faculty of
The University of Utah
in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

Department of Educational Psychology

The University of Utah

August 2012

The University of Utah Graduate School

STATEMENT OF DISSERTATION APPROVAL

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ABSTRACT

Given the changing racial/ethnic composition of the United States, the impact of culture on adolescent health risk behaviors is an emerging and important issue. The purpose of the present study was to examine acculturation and ethnic identity and its impact on substance use, depression, and self-esteem in a sample of middle school students. Further, this study examined peer influence as a potential mediating factor in the relationship between acculturation and drug and alcohol use. Results showed that acculturation and ethnic identity were unrelated to depression and self-esteem, and the integration acculturation strategy did not predict substance use. The Sobel Test revealed that peer influence did not mediate the relationship between acculturation and ethnic identity but it was significantly related to lifetime substance use. Moreover, the rate of lifetime substance use for this sample was double the national substance use rates for adolescents. These findings provide information for school counseling personnel in identifying risk and protective factors for substance use in early adolescents. Additionally, these findings provide support for including multicultural responsive services in substance use prevention programming in schools.

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CHAPTER I

LITERATURE REVIEW

Adolescent Substance Use

Substance use is a significant health problem among adolescent youth (Elek, Miller-Day, & Hecht, 2006; Johnston, O'Malley, Bachman, & Schulenberg, 2009). Early initiation of substance use can lead to education deficits, externalizing and internalizing psychological disorders and have long-term consequences such as adult substance abuse (Meyers & Dick, 2010). The effects of early adolescent substance use are widespread and research shows a myriad of risk factors and negative outcomes associated with use (Anthony & Petronis, 1995). Certain populations of youth may be at an even greater risk for substance use. The following review will describe prevalence rates of substance abuse, the effects of abuse, and risk factors associated with abuse. Additionally, ethnic identity, acculturation and peer influence are discussed as variables that may serve as protective factors in adolescent substance use.

Annual national prevalence rates highlight the severity of adolescent substance use. *Monitoring the Future* (MTF; Johnston, O'Malley, Bachman, & Schulenberg, 2008) is a long-term study that collected 30-day, annual, and lifetime prevalence data of adolescent substance use for illicit and licit drugs from a representative sample of 8^{th}, 10^{th}, and 12^{th} grade students nationwide since 1991. One of their major findings is that 47% of adolescents had experimented with illicit drugs such as marijuana, inhalants, and hallucinogens by the end of their high school tenure (Johnston et al., 2008). For students

in the 8th, 10th, and 12th grades, this represents a slight increase in illicit drug use compared to the previous year. Although these rates decrease slightly when marijuana is excluded from the analyses, in the past year prevalence rates for marijuana use were 10.9% for 8th graders, 23.9% for 10th graders, and 32.4% for 12th graders. Furthermore, these annual trends are consistent with 30-day prevalence increases for marijuana from 2007 to 2008 for 8th and 12th grade students. In terms of inhalants, 8th grade inhalant use rivals both the annual and lifetime prevalence rates for 10th and 12th grade students. Prevalence rates for hallucinogen use are smaller in comparison; however, lifetime, annual, and 30-day prevalence rates also show an increasing trend in use as adolescents move from the eighth to the 12th grades. However, recent- and longer-term prevalence rates for adolescent substance use are stable.

In addition to illegal drugs, licit substances such as alcohol and tobacco continue to be a considerable concern during adolescence (note that *MTF* defines alcohol and tobacco as licit substances). By the 8th grade, 39% of adolescents will have tried alcohol and 18% will have consumed enough alcohol to intoxication. Fifty percent of high school seniors regularly use alcohol. Of that number 26% have engaged in binge drinking. In terms of tobacco use, the MTF study indicates that children as early as age 9 have smoked cigarettes. Forty-five percent of adolescents will have tried cigarettes by the time they reach the 12th grade. At the time of the MTF study, 5% of 8th grade boys and 12% of 12th grade boys indicated that they had used smokeless tobacco products in the past 30 days (Johnston et al., 2003).

Alcohol, tobacco and marijuana are substances that rank among the most frequently used drugs by adolescent youth nationwide (Johnston et al., 2008). These

substances are also known as gateway drugs, which typically precede experimentation and use of more dangerous classes of drugs (Fisher & Harrison, 2005; Kandel, 1989). Although only a small percentage of 8th, 10th, and 12th grade students perceived great risk in trying a substance once or twice (Johnston et al., 2008), early initiation of substance use has been linked to later substance abuse and other problematic behaviors in late adolescence and early adulthood (Hawkins, Catalano, & Miller, 1992; Hawkins, Jenson, Catalano, & Lishner, 1988). In addition, even occasional use can put adolescents at risk for significant harm, including overdose, motor vehicle collisions, violent behaviors, and consequences of sexual contact (such as pregnancy and sexually transmitted diseases). However, statistics reported by national longitudinal studies indicate that adolescent substance use is more widespread than casual experimentation (Fisher & Harrison, 2005).

Racial/Ethnic Minority Adolescent Substance Use

Certain populations of adolescents may be at a greater risk for substance use. Demographic subgroup data for 30-day, annual, and lifetime prevalence rates of substance use for 8th, 10th, and 12th graders from 1991 through 2007 has been published in the *Monitoring the Future Occasional Paper 69* (2008). The *MTF* Occasional Paper reported on the three largest racial groups, Caucasians, Hispanics, and Blacks, and identified important trends in drug use during this 16-year period. For example, annual prevalence rates for use of any illicit drug show that Hispanics have historically reported the highest use in 8th and 10th grade while their Caucasian peers surpass them in the twelfth grade (Johnston et al., 2008). Hispanics reported the highest substance use of all the racial/ethnic groups in most drug categories in the 8th grade. On the other hand, African American students have the lowest reported use of the majority of both illicit and

licit substances since the inception of the *MTF* study. Additionally, the rates for 30-day alcohol and cigarette use are substantially lower for African American youth by the 12th grade compared to Caucasian students.

Prevalence rates for substance abuse in other racial subgroups have also been examined (Wallace, et al., 2003). For example, Asian American students had the lowest lifetime prevalence rates across ethnic groups and grade levels (8th, 10th, and 12th) for marijuana, alcohol, and cigarette use, while American Indian students had the highest. Further, American Indian female students reported the highest use of marijuana in the 8th (24.9%) and 12th (32.0%) grades in the past 30 days, while their male peers reported the highest use of marijuana in 10th grade (32.8%). The American Indian students also reported the highest cigarette use for 30-day prevalence across grade levels. Moreover, the Indian Health Service (1998) reported that age-adjusted alcoholism death rates between 1994-1996 were seven times higher for American Indians than the general U.S. population. These data indicate that ethnic minority students are at greater risk than their Caucasian peers for substance abuse and other related health concerns.

Importance of Examining Racial/Ethnic Minority Populations

The importance of examining substance abuse in racial/ethnic minority populations can be seen in the increased prevalence rates associated with certain groups in addition to the changing demographic composition of the United States. For example, in 2008, minority groups were estimated to represent over 34% of the total U.S. population (U.S. Bureau of the Census, 2000a). Specifically, Hispanics were the largest minority group (15%) followed by Black (12.8%), Asian (4.5%), American Indian and Alaska Native (1.0%), and Native Hawaiian and Other Pacific Islanders (0.2%). Of these

population estimates, 24.3% were 18 years of age and younger. In Utah, the racial/ethnic composition is similar: Hispanics are the largest minority group (12.0%), followed by Asian (2.0%), American Indian and Alaska Native (1.4%), Black (1.3%), and Native Hawaiian and Other Pacific Islander (0.8%) persons (U.S. Bureau of the Census, 2000b).

Additionally, immigrants account for 12.6% of the total U.S. national population, 9.4% of the Utah population, and 9.2% of the New Mexico population as reported in the *Backgrounder* (Camarota, 2007). A total of 55% of the total U.S. immigrant population is from Latin America. Of the national estimates, 31.3% are Mexican-born immigrants. Further, Utah and New Mexico are among the top 20 states that saw statistically significant growth in immigrant population during 2000-2007 (Camarota, 2007). In 2007, the U.S. Census Bureau reported that immigration is at its highest level since the early 20th century. Although the highest percentage of the immigrant population is concentrated in border states, Utah ranks in the top 25 receiving states for immigrants. Also, immigrant children account for a large proportion (20.2%) of the total school-age population (Camarota, 2007). The statistics on minority and immigrant youth signify a movement towards a progressively more multicultural student population. Furthermore, U.S. -born Latino youth have the highest rate of unmet mental health needs compared to other racial ethnic groups (Botvin et al., 2001; Kataoka, Zhang & Wells, 2002). Given that the population of ethnic minority students, and Latino youth in particular, continues to grow and the fact that they are at greater risk for substance abuse and other health-related concerns, more research is crucial. Therefore, this study specifically examines adolescent substance abuse in Latina/Latino populations.

Adolescent Health Risk Behaviors

Regardless of minority group status, the current substance use rates raise concern for serious problems that are often associated with adolescent substance use. Hawkins, et al., (1992) have developed a prevention model for adolescent substance use and have identified risk factors that fall under the umbrella of contextual and individual-level factors. Within this framework a large number of risk and protective factors ranging from taxation to family bonding have been identified. Areas of risk on which this paper will focus include: 1) substance use/delinquent behavior, 2) academic and school failure, and 3) psychological health.

Substance use. To clarify the nature and extent of substance use and abuse among children and adolescents, this study will use criteria established by the American Psychiatric Association (APA) in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR, APA, 2000). In the DSM-IV-TR, the term "substance" refers to a drug of abuse, a medication, or a toxin. Substances are grouped into 11 classes: alcohol; amphetamines; caffeine; cannabis; cocaine; hallucinogens; inhalants; nicotine; opioids; phencyclidine (PCP); and sedatives, hypnotics, or anxiolytics. In addition to drugs, over-the-counter medications and exposure to volatile substances can cause Substance-Related Disorders. If volatile substances (e.g., fuel, glue, paint) are used for the purposes of becoming intoxicated, they are classified as inhalants; if exposure is accidental, they are considered toxins.

Substance-related disorders are divided into two categories: substance use disorders (substance dependence and substance abuse) and substance-induced disorders (substance intoxication, substance withdrawal, substance-induced delirium, etc.)

According to the American Psychiatric Association, substance dependence includes "a pattern of repeated self-administration that usually results in tolerance, withdrawal, and compulsive drug-taking behavior" (p. 176). Some recognize substance dependence as addiction (J.J. McWhirter, B.T. McWhirter, E.H. McWhirter, & R.J. McWhirter, 2007). This definition can be contrasted with substance abuse, which is defined as "a maladaptive pattern of substance use manifested by recurrent and significant adverse consequences related to the repeated use of substances" (APA, p. 182). To be diagnosed with a substance use disorder, one would need to meet specific criteria within a 12-month period. McWhirter, et al. (2007) suggest that to diagnose substance abuse in children and adolescents it is important to examine the frequency of use, the quantity typically used, the variety of substances used at the same time (i.e., polydrug use), the social context in which drugs are used, and the emotional state of the abuser.

The American Psychiatric Association defines substance intoxication as "clinically significant maladaptive behavior or psychological changes due to the direct physiological effects of the substance on the central nervous system that develop during or shortly after use of the substance" (APA, 2000, p. 183). Examples of maladaptive behavior or psychological changes may include belligerence, mood lability, cognitive impairment, impaired judgment, and impaired social or occupational functioning. At the same time, it should be noted that substance intoxication varies from person to person and depends on numerous factors such as the substance involved, the dose, duration, tolerance of the individual, expectations, etc.

If one could imagine a continuum for substance use, the substance-related disorders may be situated at one end, while abstinence may be located at the other end.

Experimentation would be situated somewhere in the middle. Although one may think that experimentation with tobacco or alcohol is not a significant problem, the use of these substances are often considered "gateway" drugs, as they often precede the use of illicit drugs such as marijuana, inhalants, methamphetamine, and coca-based substances (McWhirter, et al., 2000).

Delinquent behavior. The use of illegal substances may also precede delinquent behavior. The *National Household Survey on Drug Abuse* (NHSD*A*; Substance Abuse and Mental Health Services Administration, 2006) classifies delinquent behavior as follows: (a) serious fighting at school or work, (b) taking part in a fight where a group of friends fight against another group, (c) attacking someone with the intent to seriously hurt them, (d) stealing or trying to steal something worth more than $50, (e) selling illegal drugs, or (f) carrying a handgun. The *NHSDA* found that illicit drug use almost doubled the likelihood that youth between the ages of 12 and 17 would engage in violent behavior, compared to nonusers (49.8% vs. 26.6%). Moreover, youth between 13 and 15 years of age were at particular risk for engaging in violent behavior in the past year compared to their younger or older peers. Additionally, the *NHSDA* found that youth who reported heavy alcohol use were most likely to engage in any of the evaluated categories of delinquent behavior in the past month (Substance Abuse and Mental Health Services Administration, 2006). Further, rates of violent behavior tended to increase as number of drugs used increased. Finally, the *National Survey on Drug Use & Health* (*NSDUH*; Substance Abuse and Mental Health Services Administration, 2004) reported that substance abuse or dependence rates significantly increased with involvement in the criminal justice system.

These data are consistent with longitudinal data (Windle, 1990) analyzed from the National Longitudinal Survey of Youth (NLSY) database that examined the relationship between early adolescent antisocial behaviors and late adolescent substance use in a nationally representative sample of youth (N = 11,400). These researchers found significant correlations between early adolescent delinquent behavior and late adolescent substance abuse, particularly for males.

Academic and school failure. School failure is a second related risk area for substance use. Adolescents who meet criteria for a substance abuse or dependence disorder endorse problems fulfilling major role requirements such as school (Chung, 2008). More specifically, signs that point toward a substance use problem include changes in behavior at school such as excessive absences, incomplete assignments, and conduct problems directed toward teachers, peers or property (Archambault, 1992). The *National Survey on Drug Use & Health* (*NSDUH*; Substance Abuse and Mental Health Services Administration, 2007) found that involvement in school-based or other community and faith-based activities resulted in lower licit and illicit substance use rates. The *NSDUH* Report (2006) found that between 2002-2004 the majority (73%) of youth who did not endorse recent use of alcohol reported above average grades, and a smaller percentage (58%) who reported recent binge drinking had similarly good grades.

Mexican-American adolescents' academic achievement and success trails other subgroups in public education (Aguirre & Turner, 2001). A disproportionately high number of Mexican-American students lag behind academically, despite increasing numbers of school-aged students belonging to this group. These students tend to become more vulnerable to academic deficits as they move forward in their education (Lopez,

Ehly, & Garcia-Vasquez (2002). For example, Latino students have a higher dropout rate (18.3%) compared to their White peers (4.8%) and the rate is even higher for foreign-born Latino students (U.S. Department of Education, 2010).

Psychological health. Mental health is a third area of risk associated with drug use. The statistics on prevalence rates for adolescent substance use have implications for mental health-related diagnoses that often co-occur with substance abuse and the acculturation process. For instance, the *NSDUH* Report indicated that adolescents who reported current use of illicit drugs were twice as likely to experience a major depressive episode compared to their non substance using peers (Substance Abuse and Mental Health Services Administration, 2005). Other possible dual diagnoses include behavioral and emotional disorders that are often coupled with substance abuse. The *Drug and Alcohol Services Information System* (DASIS) 2003 Report indicated that 21% of adolescent youth between the ages of 12 and 17 who sought treatment for a substance use disorder had a co-occurring psychiatric diagnosis, compared to 19% of adults seeking similar treatment (Substance Abuse and Mental Health Services Administration, 2005). Furthermore, Hispanic students were found to be more likely than Black and White students to make a plan and to attempt suicide (YRBS; Centers for Disease Control and Prevention, 2007).

Research suggests that prevention of adolescent substance use could moderate related risk factors such as teenage pregnancy, academic failure, violence and delinquency (Hawkins et al., 1992). The *MTF* study reports that “Smoking, drinking, and illicit drug use are leading causes of morbidity and mortality, both during adolescence as

well as later in life" (Johnston et al., 2008, p.1). Therefore, substance use is a risk factor that can pose potential comorbid and health related short- and long-term consequences.

Environmental and Social Correlates of Substance Use

Individual factors such as family, emotions, personality characteristics and cultural background, together with peer influence, are variables that have been found to be related to child and adolescent substance abuse. Of these factors, those that make it more likely that an individual will use and abuse substances are termed "risk factors." Conversely, factors that directly or indirectly reduce the likelihood of substance use and abuse (e.g., mediation or moderation) are termed "protective factors." It is important to understand risk and protective factors, as they can be used to design prevention programs. Given the broad array of risk and protective factors, complete coverage of all correlates of drug use and abuse exceeds the scope of this research. Therefore, attention is given to family, emotions, and personality characteristics, but the focus of this research is on the role of cultural and peer influence variables.

Family. Researchers have found a relationship between family variables and substance use in children and adolescents. For example, Webster-Stratton (1997) found that parenting style is related to many problem behaviors, including early-onset substance use. More specifically, DiClemente et al. (2001) found that low parent monitoring predicted early alcohol, tobacco, and marijuana use in children. Other researchers found that poor parent-child relationships, deficient parental limit setting, and weak problem-solving and communication skills predicted higher substance use as well (Dishion & McMahon, 1998; Kosterman et al., 2000). Further, parental substance use and lower

socioeconomic status predicted the onset of alcohol and tobacco use in a sample of 351 preadolescent and adolescent boys (Kirischi, Vanyukov, & Tarter, 2005).

The importance and protective nature of the family as a core characteristic among the Hispanic population is well documented (Organista, Organista, & Kurasaki, 2003). Familialism in Hispanic families is argued to represent interdependence, loyalty, and the relative closeness of these families compared to majority families (Marin & Marin, 1991). The supportive nature of families and other social support help guard youth from stressful events (Vaux, 1988).

Family variables have dominated research studies examining substance use and acculturation among adolescents. Adolescents spend a considerable amount of time with friends compared to family (Csikszentmihalyi & Schneider, 2000), so it is understood that friendships can be very influential (Vaquera, 2009). Thus, other social networks such as peer friendships may also help explain influences in adolescents beyond the family (Vaquera, 2009).

Lecroy and Krysik (2008) found a positive relationship between Hispanic adolescents who associate with pro-academic peers and higher grade point average and greater attachment to school. On the contrary, research has found that Hispanic students who have friends in gangs are more likely to be at risk for dropping out of high school (Reyes & Jason, 1993), and Hispanic high school dropouts are more likely to have friendships with peers who dropped out and who underperform in school (Valverde, 1987). This research suggests that peer relationships are influential in academic achievement and may also be telling in other significant ways. Examining broader social

ties may offer important information about how these systems operate and influence other factors such as substance use and acculturation in the lives of young Hispanics.

Emotions. Adolescence has been characterized as a transitional stage of physical and mental human development that occurs between childhood and adulthood. This transition involves biological, social, and psychological changes. G. Stanley Hall suggested it is a time of unavoidable "storm and stress" with youth anxiously looking for, then rejecting, leadership or guidance from both peers and adults. McWhirter et al., (2007) described how psychic pain can emerge from a chronic sense of failure and self-criticism and lead to lower self-esteem in young people. Additionally, adolescents may experience depression and anxiety when they internalize negative attributions regarding their problems (McWhirter & Burrow-Sanchez, 2004).

High self-esteem supports optimal functioning in many contexts, including academic performance (Carrananza, You, Chhuon, & Hudley, 2009). Studies examining acculturation in Mexican-American adolescents have found that students' self-esteem to play a role in academic achievement and aspirations (Carrananza, et al., 2009) and academic resiliency (Waxman, Haung, & Pardon, 1997). Further, high self-esteem has been linked to adaptation to mainstream United States culture (Valentine, 2001). Research suggests that acculturation is positively related to higher self-esteem among young adults (Valentine, 2001) and among adolescent immigrants (Sam, 2000). The results of this study indicate that Hispanics' self-esteem is positively associated with their assimilation into mainstream American culture, and this finding has important implications. Phinney, Madden, and Santos (1998) examined psychological variables and perceptions of discrimination in a sample of Armenian, Mexican, and Vietnamese

adolescents. They found that ethnic minority adolescents with depression and lower self-esteem are more susceptible to forms of discrimination. Adolescents who have poor coping skills may be vulnerable to intense emotional pain and may see drug use as a potential source of relief.

Personality characteristics. Specific aspects of temperament have been studied in relation to substance use. For example, higher levels of sensation seeking, desire for independence, low interpersonal trust, more intense reactions to reward, and greater difficulty inhibiting behavioral impulses are associated with pervasive substance use. Additionally, Kirisci et al. (2005) found that rebelliousness, nontraditionalism, tolerance for deviance, adventuresomeness, and need for excitement relate to substance use, while Wills et al. (2001) found that negative affectivity or negative emotionality was associated with substance abuse.

Using data from a longitudinal study of youth in the Netherlands, Creemers et al. (2009) found that the risk of early onset marijuana use was more than four times as high in individuals who initiated cigarette smoking at an early age (before age 12) when compared to their peers who did not begin smoking that early in life. Additionally, they found that a high level of high-intensity pleasure predisposed children to early onset tobacco use which in turn increased the risk of early onset marijuana use. Further, low levels of shyness were associated with an increased risk of progression from cigarette smoking to marijuana use. This is consistent with other research that has found low behavioral inhibition in late childhood and early adolescence was associated with early onset marijuana use (Masse & Tremblay, 1997; Shedler & Block, 1990). At the same

time, not all adolescents with high-intensity pleasure and low shyness will initiate the use of substances at an early age.

Terminology

Several terms that are used throughout this paper are defined below to help clarify their meaning. The terms include ethnicity, ethnic group, ethnic identity, immigrant, and Latino. First, ethnicity is a term used by individuals to identify with a certain ethnic group. Phinney (2003, p. 63) defines ethnic groups as:

> Ethnic groups are subgroups within a larger context that claim a common ancestry and share one or more of the following elements: culture, phenotype, religion, language, kinship, or place of origin.

The terms African American, Asian American, American Indian or Alaska Native, and Latino are used as broad references to individuals who identify as members within these subgroups. However, different labels such as Black or Hispanic are also used in this paper to be consistent with how individual studies or reports describe their sample populations. In contrast to ethnicity, ethnic identity is a fluid understanding of one's self and background and can change with experience (Phinney, 2003). Fourth, immigrant is used to refer to individuals who were not born in the United States and who have immigrated to the U.S. Lastly, the term Latino is used to broadly categorize individuals who are living in the U.S. with common ancestry from Mexico, Puerto Rico, Cuba, Venezuela, Spain, and other Latin countries (Sue & Sue, 2003).

Risk and Protective Factors

The influence of culture cannot be underestimated in terms of substance use and abuse. Children and adolescents of color may experience racism, discrimination, and

stereotyping on a daily basis. If they grow up in an economically depressed community, they may also be privy to many of the social ills associated with poor neighborhoods, such as poverty, violence, lack of educational and job opportunities, lack of "healthy" role models, and crime. Latino adolescents tend to live in economically depressed neighborhoods and attend school districts with fewer resources (Suárez-Orozco & Suárez-Orozco, 2001). Latino students were also found to have higher rates of not going to school because they felt unsafe at school or on their way to or from school (CDC, 2000). Johnston, O'Malley, and Bachman (2000) suggest that these types of environments contribute to increased use of substances and to aggression.

Acculturation and ethnic identity are two cultural variables that may be related to adolescent substance abuse. Acculturation refers to a "process involving two or more groups, with consequences for both; in effect, however, the contact experiences have much greater impact on the nondominant group and its members" (Berry, 2001, p. 616). In contrast, ethnic identity pertains to "one's identity or sense of self as a member of an ethnic group" (Phinney, 2003, p. 63). Ethnic identity has been conceptualized as a dynamic process that can change with development and/or experience.

Over the years, a variety of approaches have been used to measure acculturation. For example, several studies have measured acculturation using a one-dimensional model. Zane and Mak (2003) provided a description of three different one-dimensional models and the limitations of these methods. First, different methods in assessing domains of psychosocial functioning have been used, with language proficiency being the most common indicator of acculturation. However, this fails to address the other, less studied, areas of psychosocial functioning such as generational status and values. Even

generational status does not account for the fluidity of acculturation and ethnic identity (Phinney, 2003). Other variables such as socioeconomic status (SES) have been found to be strongly correlated to measures of acculturation (Cuellar, 1995). Although this is not a surprising finding, researchers (Negy & Woods, 1992) caution against using SES as a sole measure of acculturation as this may lead to erroneous conclusions about certain populations.

Second, the use of one-dimensional models has offered a simplistic view of the process of acculturation. This approach does not take into consideration the ability to maintain one's original culture while at the same time adapting to the dominant culture. Lastly, instrumentation developed for particular ethnic groups has also varied, with different measures assessing different psychosocial domains of interest (Zane & Mak, 2003). However, many of the existing measures have not assessed the range of subgroups within a larger ethnic classification. For example, many of the measures that have been developed for Latino populations have been normed on and targeted towards Mexican-Americans. The lack of uniformity across studies and within specific ethnic groups makes comprehensive analyses and comparisons difficult (Rogler, Cortes, & Malgady, 1991; Zane & Mak, 2003).

Acculturation. The United States is becoming an increasingly pluralistic society. With immigration being an ever-important political reality, diversity issues such as acculturation are being given serious consideration. Acculturation has been redefined with evolving attention and research into this concept. Furthermore, the current political status of immigration is continuing to reinforce the need for examination of acculturation.

Acculturation has been studied among several Latino subgroups. However, special attention has been devoted to the cultural phenomenon associated with Mexican-American acculturation (Chun & Akutsu, 2003). Many factors, including the proximity and increasingly heightened political climate between the United States and Mexico contribute to the need for continued attention to this Latino subgroup.

Aspects of the Latino culture may serve as protective factors against these problems. Family (*familismo*) and the importance of relationships (*personalismo*) are core values that have been found to support positive coping and reject problems instigated by the acculturation process (Marin & Marin, 1991). Vega and Alegria (2001) found that Latinos use family and other social networks as a method of coping with psychological problems. Other social contacts such as same-aged neighbors or peers may provide a network of relationships that are equally influential in promoting mental health.

Researchers have examined the relationship between acculturation and several areas of functioning across the lifespan (Organista, Organista, & Kurasaki, 2003). The transition inherent in the acculturation process can produce several problems, including poor mental health, academic problems, and substance use in adolescents, for example (Vega & Alegria, 2001). Acculturation can involve many challenges that involve learning a new language, customs, laws, and norms (Organista, Organista, & Kurasaki, 2003). These major adjustments to a new host society are daunting. According to Berry and Kim (1988), the burden associated with meeting different cultural expectations can create increasing stress, which is termed *acculturative stress*. Berry and Annis (1974) explain that this cultural interchange is likely to involve some degree of distress.

The stress response may be impacted greatly by the type of migration (e.g., immigrant vs. refugee), similarities of and relationship between the two countries, and attitudes held by the host society (Berry, 1997; Berry & Annis, 1974; Organista, et al., 2003). When individuals are experiencing an unusual amount of conflict with the new host culture and problems are not being resolved through assimilation, a stress response is induced (Berry, 2005). Realizing these demands and obtaining the resources required to maintain healthy and positive coping may prove overwhelming. The current immigration reform debate in the United States and, in particular, the state of Arizona (e.g., SB 1070) has illustrated how migrating to a new country can be emotionally taxing and have serious psychological consequences (e.g., racism, exploitation, stereotyping, etc). The complex experience of adapting to a new culture and enduring several trial-and-error experiences during acculturation can cause great amounts of stress. Although it is suggested that a bi-cultural (e.g., integration) strategy is optimal when individuals are attempting to manage multiple cultures (Cuellar et al., 1995), this management relies heavily on the acceptance of the host culture and the history behind both cultures (Chun & Akutsu, 2003). It is important to understand these relationships to understand the acculturative stress that might accompany this type of transition.

Throughout recent history, acculturation has been given different meanings and has been understood from different theoretical frameworks. A contemporary view of acculturation is defined as "the dual process of cultural and psychological change that takes place as a result of contact between two or more cultural groups and their individual members" (Berry, 2005, p. 698). This definition combines the complex cultural and psychological phenomena that arise as part of a cultural exchange. More specifically,

this view allows the interaction between the culture of origin and the host culture to be independent of one another (Phinney, 1990).

A prominent researcher in the field (Berry, 2003) has proposed a general framework that incorporates two levels of the acculturation process: cultural/group and psychological/individual. In this framework, these two levels are conceptualized as distinct processes that involve both cultural and psychological adaptation.

Labels of acculturation exist at the cultural and psychological levels for both non-dominant and dominant groups. Berry (2005) explains that dominant groups adapt to cultural diversity through strategies parallel to nondominant groups, which he labeled as multiculturalism, melting pot, segregation, and exclusion. These strategies signify the interplay between two cultural groups, as opposed to a unilateral understanding of cultural adaptation. Further, it is advantageous to the integrity of acculturation research to examine both cultures in contact to fully understand acculturation at the individual level (Berry, 2005). This mutual relationship can become more entwined because, "in a multicultural society, adolescents also might experience influences from other immigrant cultures, such as their friends' or neighbors' cultures of origin" (Unger et al., 2002, p. 227). Thus, a more comprehensive view of acculturation is necessary to understand the interplay between nondominant and dominant groups differing levels of adaptation.

There are four acculturation strategies formulated under this framework that include two dimensions (cultural and psychological) that range from preference towards the culture of origin vs. preference towards other cultures (Berry 1980; 2005). Within this framework there are strategies that help facilitate a rich understanding of the acculturation construct at the psychological level.

The four acculturation strategies used by individuals from nondominant groups include integration, assimilation, separation, and marginalization (Berry, 2001, 2005). *Integration* occurs when both the culture of origin and host cultures are embraced. *Assimilation* occurs when the culture of origin is abandoned while inter-group relationships are sought. Conversely, *separation* occurs when the culture of origin is embraced while intergroup relationships are abandoned. Lastly, *marginalization* occurs when neither the culture of origin nor the host culture is embraced. These acculturation strategies can be viewed as options; however, the strategy and practice an individual uses is not always a choice (Berry, 1974; Berry, 2003). Thus, the integration strategy is an optional choice for nondominant groups only when the host society has an open and inclusive orientation toward cultural diversity (Berry, 1991). These strategies are useful in conceptualizing the acculturation process as individuals adapt differently (Berry, 2005).

The strategy will likely vary depending on the course of the acculturation process (Berry, 1980). Thus, acculturation strategies used may be heavily influenced by the inter-cultural contact with the dominant group. Berry (2005) found that "marginalization is often associated with major heritage culture loss and the appearance of a number of dysfunctions and deviant behaviors (such as delinquency and substance and familial abuse)" (p. 708). Alternatively, integration was found to be the least stressful of the acculturation strategies.

The strategies differ among and between members of ethnocultural groups and are categories that distinguish between the two dimensions (e.g., group and individual) of acculturation. Further, they are not reflective of simple options for the non-dominant

group (Berry, 2005). This multilayered process encountered during acculturation involves changes that are somewhat normative to adapting to a new culture (Berry, 1980; Berry, 2005). The contact between the groups and their respective adaptations may conflict and create a more vulnerable acculturative experience for the non-dominant individual, potentially causing acculturation stress. Berry (1980) explains that the degree of stress may depend on the receptiveness of the host culture. However, other experiences that might be discrepant between the individual and dominant culture may induce stress and other sources of adjustment may be sought. For instance, there has been considerable attention given to the relationship between substance abuse and acculturation.

There has been a small amount of research suggesting that acculturation is related to adolescent substance use. The study of acculturation has generated much interest in recent history, and has been found to be an important variable in mental health issues related to ethnic minorities (Zane & Mak, 2003). A supplemental report from the U.S. Surgeon General emphasizes the interconnectedness of culture and mental health and emphasizes cultural factors as important variables in mental health (2001). Some research has found that higher levels of acculturation serve as a protective factor against substance use. For example, Zamboanga, Schwartz, Hernandez Jarvis, and Van Tyne (2009) conducted a study to examine the direct impact of acculturation on substance use and investigate the possible mediating relationship of acculturative stress and self-esteem on that relationship. Data collected were from a large study assessing cultural experiences and psychosocial adjustment among ethnically diverse middle school students (N=904). A subsample of sixth, seventh, and eighth grade students who identified as Hispanic

(34%) were included in the analyses. More specifically, the majority of Hispanic participants were of Mexican ancestry (58%) and born in the United States (86%).

The Rating Scale for Mexican Americans-II (ARSMA-II; Cuellar et al., 1995) was used to measure acculturation and the Process-Oriented Stress subscale from the Societal, Attitudinal, Familial, and Environmental Acculturative Stress Scale for Children (SAFE-C; Chavez et al., 1997) was used to measure acculturative stress. The Multi-Group Ethnic Identity Measure (Roberts et al., 1999) was used to measure ethnic identity. The Rosenberg Self-Esteem Scale (Rosenberg, 1977) was used to assess self-esteem and items adapted from the Centers for Disease Control and Prevention (CDC, 2001) were used to assess lifetime substance use. Results of this study show that most of the adolescents did not endorse having used a large amount of marijuana, alcohol, or cigarettes. However, of the substances listed, alcohol (34%) was endorsed most. These researchers found higher levels of ethnic identity to be positively related to substance use. Further, higher levels of acculturation were found to be an indirect protective factor against substance use, while lower levels of acculturation (e.g., Hispanic cultural practices) were found to be an indirect risk factor for alcohol use. Results showed that higher levels of self-esteem were predictive of abstaining or limiting substance use. Also, results suggest that the Hispanic orientation was related to acculturative stress and marijuana use.

Fosados et al. (2007) conducted a pilot study investigating the relationship of acculturation and substance use among a sample of Latino students in a single high school (*N*=198). Self-administered questionnaires were given that included measures of demographics, peer influences and adult modeling, several acculturation measures, and a

substance use instrument measuring both current and lifetime licit and illicit substance use. They measured acculturation using the Acculturation, Habits, and Interests Multicultural Scale for Adolescents (AHIMSA; Unger et al., 2002), the Marin Acculturation Scale (Marin Sabogal, Marin, Otero-Sabogal, & Perez-Stable, 1987), and the Acculturation Rating Scale for Mexican-Americans (ARSMA-II; Cuellar, et al., 1995). The sole acculturation measure chosen for evaluation was the AHIMSA (2002), which is a potential weakness of this study. However, Unger et al. (2002) assert "When conducting population-based research in a multicultural setting, it is necessary to have an acculturation scale that is relevant to people from any ethnic background" (p. 229). Given that the AHIMSA applies to all groups, this measure was used. These researchers hypothesized that marginalization would be associated with substance use.

Results indicated that a greater number of adolescents endorsed an *integrated* followed by an *assimilated* acculturation strategy. Lifetime drug use for individual drug categories was less than lifetime alcohol use. Current use of alcohol among adolescents was reported as 14.9%. The *separation strategy* was associated with greater use as well as both social influence variables (e.g., peer and adult influences) while assimilation was a protective factor for current alcohol use. However, *marginalization* was associated with and was a predictor of lifetime alcohol use, along with being significantly associated with both social influence variables. Peer influence had the biggest impact on current drug use, followed by modeling. Further, the assimilation acculturation strategy was found to be protective against alcohol use, whereas the separation strategy was associated with higher use.

Tonin, Burrow-Sanchez, Harrison, and Kircher (2008) surveyed a large sample of Mexican American middle school students (*N*=2964) about their level of acculturation and attitude toward drugs and reported use of alcohol, marijuana, and inhalants in the past 30 days. These researchers used data from a larger project aimed at collecting information on adolescent health and risk factors. They used language use at home as the single measure of acculturation and the *Communities That Care Youth Survey* (Arthur, Hawkins, Pollard, & Baglioni, 2002) to assess attitudes toward drugs among these youth. Results of this study indicate that more permissive attitudes towards substances by females were related to higher alcohol and inhalant past 30 day use. Further, these authors found that more lax attitudes positively correlated with reported marijuana use in the past 30 days. They also found that language use moderated attitudes and reported use of substances with alcohol, but not inhalant use.

Brindis, Wolfe, McCarter, Ball, and Starbuck-Morales (1995) conducted a survey in two California high schools comparing immigrant status on risk-taking behaviors such as substance use of Latino U.S. -born (*n*=666) and Latino foreign-born (*n*=229) adolescents with their non-Hispanic White peers (*n*= 1789). The results of their survey showed that the rate of risk taking behaviors in the non-Hispanic White group was statistically less than both Latino groups. Although no statistically significant differences were found between the Latino groups, results showed that foreign-born Latinos displayed the highest endorsement of risk-taking behaviors. Both Latino groups were more likely to engage in multiple risk behaviors (>5 out of 8) compared to their non-Hispanic White peers. Moreover, U.S.-born and presumably more acculturated Latinos

were more likely to engage in alcohol and marijuana use compared to foreign-born Latinos and Whites.

Berry, Phinney, Sam, and Vedder (2006) recently conducted a large-scale study examining acculturation, ethnic identity and adaptation with 7,997 adolescents from 26 different cultural backgrounds residing in 13 countries. Research questions related to how immigrant youth acculturate and how well they adapt were assessed using measures of acculturation and ethnic identity. Acculturation was measured using a structured scale examining the four acculturation strategies of assimilation, integration, separation, and marginalization, as well as both language proficiency and use. Ethnic identity was measured by assessing components of ethnic affirmation such as a sense of belonging and group membership. In their analyses, these researchers grouped variables by person, combining their patterns into profiles that matched the above strategies of adapting to the host culture. Similar to adult strategies, the majority of adolescents in this sample endorsed an integrative acculturation strategy or profile and, with regard to ethnic identity, endorsed diffuse strategies, which differed from the adult acculturation findings.

Conversely, other scholars have found that higher levels of acculturation can be a risk factor for substance use. Gfroerer and Tan (2003) examined acculturation and substance use with foreign-born and U.S.-born youth. These researchers analyzed past month substance use from data collected from the National Household Survey on Drug Abuse (NHSDA) between 1999 and 2000. They computed prevalence estimates for past month cigarette, alcohol, marijuana, and illicit substance use in a large sample (*N*=50,947) of youth, of which 7.1% were foreign-born. Further, they used language selected, English or Spanish, by the participant to complete the survey as a measure of

acculturation. Results of this study show that substance use prevalence rates were lower for foreign-born compared to U.S.-born youth. In addition, primarily Spanish-speaking foreign-born youth had lower substance use prevalence estimates than primarily English-speaking foreign-born youth.

Vega, Gil, and Zimmerman (1993) studied drug use patterns from a longitudinal study in Florida examining early adolescent substance use and deviant behavior. They studied substance use, identifying grade of first use, in Cuban-American, African American, and White non-Hispanic male sixth and seventh grade middle school students (*N*=6,760). They also assessed alcohol and cigarette lifetime prevalence rates. Further, they examined acculturation using a five-item measure of language preference that was adapted from the Acculturation Rating Scale for Mexican Americans (ARSMA; Cuellar, Harris, & Jasso, 1980). Results showed that about half of the respondents who smoked began their use in the sixth grade. Further, they found a statistically significant difference in alcohol use among monolingual Spanish, bilingual, and monolingual English speakers, with monolingual Spanish speakers having a lower alcohol prevalence rate than bilingual or monolingual English speakers. They did not find any statistically meaningful differences in cigarette use.

Vega, Gil, Warheit, Zimmerman, and Apospori (1993) studied acculturation and delinquent behavior in a sample of Cuban American middle school students (*N*=1,843). These researchers used several self-report measures to assess psychosocial, family, delinquent behavior, and acculturation variables. Specifically, they measured acculturation by assessing acculturation conflict, perceived discrimination, birthplace, and "perception of a closed society" (p.117). They found a statistically significant

relationship between acculturation conflict and self-derogation, suggesting that acculturation conflict is associated with lower self-esteem. Strong correlations were also found between variables of acculturation and delinquent behavior. In addition, psychosocial variables such as positive peer attitudes about drugs and peer drug use were significantly correlated with delinquent behavior. Further, a lack of family protection variables such as pride and connectedness contributed to an increased vulnerability to acculturation strain.

Ethnic Identity

A related, yet different, concept than acculturation is ethnic identity (Phinney, 1990). She defines ethnic identity as follows:

> Ethnic identity may be thought of as an aspect of acculturation, in which the concern is with individuals and the focus is on how they relate to their own group as a subgroup of the larger society. (p. 501)

Ethnic identity differs from acculturation because its focus relates to subjective feelings one has about one's own ethnic subgroup (Phinney, 2003). It is understood as a dynamic process apt to change over time and across contexts (Phinney, 2003; Phinney, 2007). Bernal and Knight (1993) found that ethnic identity develops similarly yet later than other factors of social identity such as race and gender. These researchers explain that the cognitive abilities required to understand the different features of identity such as beliefs, customs, and values is not fully realized until late childhood (Aboud, 1984; Bernal & Knight, 1993). Similarly, Rotheram and Phinney (1988) found that racial and ethnic attitudes begin to jell around the age of 10, making early adolescence a unique developmental period to examine ethnic identity.

Ethnic identity is an integral part of understanding the worldview of ethnic minorities (Atkinson, Morten, & Sue, 1998; Sue & Sue, 1997). This concept also plays an important role in adolescent identity development (Holcomb-McCoy, 2005) and lends support to understanding how ethnicity influences early adolescents' view of themselves and their world (Rotheram & Phinney, 1988). Cuellar, Nyberg, and Maldonado (1997) explain, "Ethnic identity as a component of identity development involves choices with regards to values and beliefs, and includes a connection to one's past and future" (p. 537). This is a central idea in adolescence, as it is a time ripe with goal-setting and choices linked to sense of self and identity.

Adolescence is when dynamics related to one's own ethnic group, culture, and minority status emerge and begin to be reflected upon (Phinney & Chavira, 1995). Although efforts have been made to develop specific operational and theoretical research questions for particular groups (Phinney, 1990), prior research has conceptualized ethnic identity as a general phenomenon. For example, the ethnic identity model of Phinney, 1990 has distilled three themes common among all ethnic groups: 1) self-identification, 2) ethnic behaviors, and 3) a sense of belonging. Because there are common elements embedded in this construct, it will prove useful in making generalizations when studying multiple ethnic groups (Phinney, 1990).

The first theme, ethnic self-identification, refers to the label one uses to endorse affiliation with a particular ethnic group (Phinney, 2003). This aspect of ethnic identity is usually identified through an open-ended or checklist format that includes hyphenated (e.g., Chinese-American), panethnic (e.g., Hispanic), and multiethnic labels (e.g., Black Japanese). Although ethnic labels are important for the purpose of discussing under-

researched subgroups, such categories have been deemed problematic for research, as exact descriptions of the numerous ethnic groups in the United States is nearly impossible (Phinney, 1996). However, an arguably more important aspect of ethnic identity concerns a sense of belonging to a group (Phinney & Ong, 2007). This component refers to the strength or quality of identification with one's ethnic group. Lastly, ethnic identity development involves forming an identity through a process similar to Erickson's developmental stage model (Phinney & Ong, 2007).

In addition to providing three common themes to ethnic identity development, Phinney (1990) outlined three conceptual frameworks that have been used to understand the process of ethnic identity formation: 1) social identity, 2) identity formation, and 3) acculturation and culture conflict. Studies examining ethnic identity from a social identity perspective investigate this topic as it relates to how the minority group perceives themselves in relation to the dominant group. Conversely, identity formation has its roots in a developmental framework that sees ethnic identity as a process. For example, Phinney (1989) assessed developmental stages of ethnic identity in an ethnically diverse sample of adolescents. These stages are based on both human development and minority models of identity. Phinney (1989) proposed a three-stage ethnic identity model that includes the following: *diffusion, moratorium,* and an *achieved* ethnic identity. The diffusion stage is exemplified by adolescents who have not explored or made a decision about their ethnic identity. The moratorium stage is when an adolescent is exploring identity but has not yet committed. Lastly, the achieved stage is realized after an adolescent has explored ethnic identity and then committed. This stage is particularly important, because "identity achievement is the secure sense of self that is the optimal

outcome of the identity formation process" (Phinney, 1992, p. 160). Further, high levels of ethnic identity among Black university students were found to be protective against high alcohol and marijuana use (Pugh & Bry, 2007). Identity achievement is viewed as a continuous process where high development or achievement is characteristic of both commitment and exploration of one's ethnicity. The different stages of ethnic identity capture attitudes and behaviors about one's own ethnic group and, in turn, affects one's worldview and life (Phinney, 1996).

The acculturation and culture conflict framework asserts an understanding of ethnic identity through a lens similar to acculturation (Phinney, 1990). Specifically, ethnic identity can be viewed from a one-dimensional or multidimensional lens. A one-dimensional framework defines ethnic identity along a continuum ranging from strong ethnic ties at one end to strong mainstream ties at the other (Phinney, 1990). Thus, a strong identification with one implies a weak identification with the other. Conversely, a multidimensional model views the relationship with the culture of origin and the host culture as independent from one another. Consequently, this view considers the relationship one can have with both cultures (Phinney, 1990). Although Phinney's (1993) three-stage model implies progressing through stages, it does not necessarily involve a sequence but can progress nonlinearly.

Research indicates that ethnic identity may be another cultural variable related to adolescent substance use. Scholars (Beauvais, 1998; Phinney, 1996) investigating this topic have discussed the complex and often unclear relationship between ethnic identity and substance use. For example, Wills, et al., (2007) studied ethnic pride and self-control in a sample of African-American families (N=670) in a predominantly low-income rural

community. Specifically, these researchers conducted household interviews with mothers and their children (average child age, 11). They hypothesized that ethnic pride would serve as a protective factor against substance use and sexual behavior. Several measures of parenting, racial socialization, ethnic identity, substance use, sexual behavior, and peer substance use and sexual behavior were used to evaluate the main variables of interest in this study. The Inventory on Black Identity (IBI; Sellers, Rowley, Chavous, Shelton, & Smith, 1997) was used to examine ethnic identity, and several measures were adapted to evaluate substance use, sexual behavior, and perceived peer behavior in these areas. Results of this study showed that participants reported low rates of substance use and sexual behavior, with accompanying low levels of willingness to engage in these behaviors and high strategies to resist such behaviors. Similarly, high percentages of participants indicated that their peers were also not likely to be using marijuana, alcohol, or tobacco (81%) or engaging in sexual activity (82%). Furthermore, racial socialization was found to be related to ethnic pride, whereas competent parenting was related to self-control. These variables were found to be protective against both substance use and sexual behavior.

Wallace and Fisher (2007) studied ethnic identity and substance use in a sample of Black high school students (*N*=108). Adolescent participants with an average age of 16 were recruited from public high schools and community youth. These authors examined substance use attitudes and how perceived parent, peer, and cultural factors were related. They used several self-report measures to assess these variables, including the *MTF* scale on youth attitudes toward substance use, Peer Bond Scale and Peer Attitude Toward Deviance Scale (Elliot, 1992), and the Multigroup Ethnic Identity Measure (MEIM;

Phinney, 1992). Results of this study indicated that these youth were more likely to disapprove of substance use. Males were found to perceive higher peer approval of high-risk behaviors than their female peers. Further, they found a significant positive correlation between high levels of adolescent disapproval of substance use and parental supervision and ethnic affiliation and belonging. They found that strong ethnic identification was related to disapproval of substances among these youth.

Willgerodt and Thompson (2006) studied the relationship between ethnic and generational factors and risk behaviors in a sample of early adolescent Chinese-American (*n*=216), Filipino-American (*n*=387), and Euro American (*n*=400) youth. Specifically, these researchers used parent in-home interview data from the National Longitudinal Study on Adolescent Health that included a large sample of high schools and middle schools (*N*=130) across the country. The independent variables of interest in this study included demographic variables, generational status and ethnicity. Outcome variables included depression, somatic symptoms, delinquency, and substance use. Several measures were used to evaluate these outcome variables, such as the Epidemiological Studies-Depression scale (CES-D; Radloff, 1977). Somatic symptoms, delinquency, and substance use were assessed using short item measures adapted by the authors. Results of this study found moderate correlations across ethnic groups for depression and somatic symptoms and delinquency and substance use. Ethnicity predicted depression and delinquency but failed to predict substance use. In particular, Filipino adolescents had higher depression and delinquency scores compared to their Chinese- and Euro American peers. Further, generational status was found to predict substance use in both Chinese-American and Filipino adolescents.

Fuligini, Witkow, and Garcia (2005) examined ethnic identity and academic adjustment in an ethnically diverse sample of Mexican, Chinese, and European ninth grade adolescents (*N*=589). They found that the Mexican and Chinese students had a stronger connection (ethnic centrality and regard) with their cultural identity than did their European counterparts. Also, they found that the strength of the labels they chose positively impacted their academic attitudes, regard for their ethnic groups, and identification with their schools. Both sets of findings are consistent with theories suggesting that the strength of one's identity is more meaningful in influencing behavior than the label of one's identity (Phinney & Ong, 2007).

Marsiglia, Kulis, and Hecht (2001) examined the relationship between ethnic labels and ethnic identification and drug use in an ethnically diverse sample of middle school students (*N*=408). These researchers found a strong sense of ethnic pride to be statistically significant for less frequent use of marijuana and hard drugs for African Americans and use of marijuana for Mexican American students. In contrast, they found White students with higher levels of ethnic pride reported more frequent use of alcohol, tobacco, marijuana and hard drugs compared to their same-ethnicity peers with less ethnic pride. When looking only at ethnic labels, the ethnically diverse groups tended to have used a variety of drugs more often in the past 30 days than their White peers. They concluded that ethnic minority students possessing ethnic pride were protected against drug use and exposure, whereas their White peers with ethnic pride were at greater risk.

Bates, Beauvais, and Trimble (1997) studied ethnic identity and alcohol use in a sample of American Indian adolescents (*N*=202). The participants' ages ranged from 12-21 years (*M*=16). Specifically, this survey study examined ethnic identity, peer influence,

and family disapproval of alcohol, with alcohol involvement as the outcome measure. All measures were developed by these researchers. Results of this study found ethnic identity to be unrelated to alcohol use, family disapproval of alcohol, and peer influence. However, analyses showed a significant interaction with family disapproval, and lower reported alcohol use among females. Of the variables, peer influence was the strongest predictor of alcohol involvement among these youth.

Phinney and Chavira (1992) studied the relationship between ethnic identity development and self-esteem among a sample of Asian American (*n*=14), Black (*n*=25), and Hispanic adolescents (*n*=25) at 16 years of age and again 3 years later. A total of 18 participants remained at the 3-year follow-up. In-depth interviews were conducted at the initial meeting, while phone interviews were conducted at the 3-year follow-up. Results of this study show that stage of ethnic identity was correlated with self-esteem at both the original and 3-year follow-up. Further, results showed that an achieved identity is stable over time, while a moratorium identity is least stable.

Peer Influence

Adolescence is a developmental period marked by change and discovery of self (Rosenberg, 1965). The self-image of adolescents is influenced by systems in close proximity to themselves, such as community, family, and peers (Rosenberg, 1965). Previous literature has discussed the importance of social influence among youth. In particular, peer relationships are especially influential during adolescence (Bailey & Hubbard, 1990; Harris, 1998) and have been found to extend to substance use. For example, Dusenberg, Epstein, Botvin, and Diaz (1994) found that adolescents who

perceived peers as using substances were more likely to engage in substance use themselves.

Oetting and Beauvais (1986) have proposed a theory of adolescent drug use termed Peer Cluster Theory. This theory posits that close peer groups are highly influential in helping shape perceptions regarding substances. Peer clusters are "usually smaller subsets–tight, cohesive groupings-in which clearly defined attitudes and shared behaviors mark membership" (p.19). This well-known theory is rooted in psychosocial and life-style theories of drug use and explains the influence of both psychological and social aspects of drug use and peer recruitment in youth (Oetting & Beauvais, 1986). These theorists explain that psychological and social environmental influences contribute to the vulnerability to experiment and to then share information about drug use to groups of peers. For example, social structure includes demographic variables such as age, ethnic group, socioeconomic status, and social links such as school success, peer sanctions against drugs, etc. These scientists argue that a good understanding of these psychosocial variables is important to know what makes youth susceptible to negative peer relationships. Social Cognitive Theory (Bandura, 1986) also underscores the power of belonging to a group system and the positive or negative influence it can exert over individual members.

Social influence in the form of selection of friendships based on substance use has also been found to play a role (Bauman & Ennett, 1994; 1999). Adolescents who are drug users are more likely to have peer groups who also engage in substance use (Oetting & Beauvais, 1986). At the same time, high-quality peer relationships can serve as a protective factor against substance use and contribute to psychological health during

adolescence (Bettes, Dusenbury, Kerner, James-Ortiz, & Botvin, 1990; Hall-Lande, Eisenberg, Christenson, & Neumark-Sztainer, 2007).

Following is a brief review of studies investigating peer influence and its association with substance use in early adolescence. Saint-Jean, Martinez, and Crandall (2008) examined psychosocial mediators and substance abuse in adolescents with different levels of acculturation. They used data from the 2004 Florida Youth Substance Abuse Survey (FYSAS), which included a large sample of schools (*N*=580) and racially/ethnically diverse adolescent participants ranging in age from 10-18 years old (>50% between 12-14 years old). The variables of interest were measured using a socio-demographic survey that was organized into four protective and risk factors domains that included community, family, school, and peer influence. Acculturation was measured by language spoken at home. Substance use was the outcome variable, with 30-day illicit substance use assessed with a two- item response option of yes/no.

Results of this study showed that the overwhelming majority of students reported speaking English at home. Significant differences were found between those students who spoke English versus another language at home, as more than half of the risk factor scores that were significant were attributed to those students who spoke English at home. Further, 17% endorsed current use of an illicit substance. On average, those students who reported current use of an illicit substance had higher risk and lower protective scores. In terms of peer influence, favorable attitudes toward substance use were related to peer drug use.

Segura, Page, Neighbors, Nichols-Anderson, and Gillaspy (2003) studied the relationship between alcohol use, peer use and acculturation in a sample of Latino

adolescents (*N*=115). These authors found that peer alcohol use was a strong predictor of Latino adolescent alcohol use. However, results of their study did not find a relationship between level of acculturation and adolescent alcohol use, and acculturation was not found to be a mediating variable between adolescent and peer alcohol use.

Moon, Hecht, Jackson, and Spellers (1999) examined substance use and refusal of drug offers in an ethnically diverse sample of seventh graders (*N*= 2,622). These researchers found ethnic and gender differences in the types of drugs being offered, relationship to the drug offerer, and strategies used to resist these offers. Specifically, they found that Mexican American students are the most likely to be offered drugs, be offered drugs at parties, and have earlier rates of use and higher rates of lifetime and 30-day drug rates. Further, they found that Mexican American students were more likely to be offered drugs by peer family members, while African Americans were more likely to be offered drugs by their dating partners and European Americans by acquaintances.

Wills and Cleary (1999) studied the relationship between social influence and adolescent substance use and found that peer influence is an important factor to consider in relation to early adolescent substance use. These authors conducted two separate studies and sampled sixth through ninth graders on three occasions over 1-year intervals and examined peer-influence versus peer-selection in adolescent substance use. In both studies, participants (*N*=1,190) were selected from public schools in the same community. Measures for both studies were first administered during the seventh grade. Study results show that adolescent participants reported that substance use increased with age. In study one using latent growth modeling analyses, these researchers found that peer substance use was positively related to adolescent use, but not the reverse. Study two

produced similar results and found strong correlations between peer use and self-use, with slope intercepts being statistically significant from peer to adolescent use. These results indicate support for an influence rather than a selection model at work during early adolescence.

Carvajal, Photiades, Evans, and Nash (1997) found a relationship between acculturation and social influence variables in a sample of Latino middle school students (*N*=448). Acculturation was measured using a five-item scale adapted from two widely used measures of acculturation (e.g., Cuellar, Harris, & Jasso, 1980; Marin et al., 1987). Several characteristics of social influence such as attitudes, intentions, and perceived behaviors and norms were measured. Results of this study showed that students with high levels of acculturation had increased positive interactions with their non-Latino peers, which seemed to serve as a protective factor against negative attitudes and use of cigarettes and marijuana.

Sommers, Fagan, and Baskin (1993) examined sociocultural influences and delinquency in Puerto Rican youth (*N*=2,343). These researchers hypothesized that sociocultural variables such as acculturation and familism would influence delinquent behaviors as well as family and school bonding. They measured acculturation using a 12-item scale (Padilla, 1980) that assessed acculturation on four dimensions. Substance use and other delinquent behaviors were measured using the Uniform Crime Reports (UCR) Part One scale. Peer bonding was measured using two scales that assessed involvement with delinquent peers and perceptions of peers engaged in delinquent behavior. The authors found high acculturation levels to be associated with theft and interpersonal

violent delinquent behavior, whereas low acculturation levels were found to be associated with illicit drug use.

Martino, Ellickson, and McCaffrey (1990) conducted a longitudinal study from the Project ALERT database and examined patterns of heavy alcohol use, parental and peer influences in a large sample of middle school youth (*N*=5,591) from 60 middle schools. These researchers began data collection with the seventh grade cohort through eleventh grade and included a 1-year follow-up survey when participants were 19 years of age. They measured the above variables with six Likert-type questions. Heavy alcohol use was measured with one item, "*How often in the past month have you had three or more drinks*?" with a five-choice response option ranging from none to nine or more days. Peer influence was measured using two items, "*How often are you with kids who are drinking alcohol?*" which offered a four-choice response option ranging from never to often, and "*Do you think your best friend drinks alcohol sometimes?*" with a two-choice response option of no or yes. Perceived parental influence was measured with three items that consisted of four response options.

Results of this study showed that adolescents who perceived their parents having a consistent disapproval of substances were more likely to abstain from alcohol use compared to those who perceived their parents as having inconsistent disapproval. They also found that adolescents who associated with peers who drink are more at risk if they also perceive a decreased disapproval of alcohol use by their parents. The researchers concluded that there are multiple trajectories of influence operating in early to late adolescent substance use.

These studies provide some insight into the complexity and multidimensional nature of these constructs and their outcomes. The relationship between acculturation, ethnic identity, and peer influence seems important in understanding the risk or protective nature against substance among youth. Furthermore, the connection between acculturation and adolescent health-risk behaviors such as substance use reinforces the need to better understand risk factors and develop prevention and intervention efforts that are culturally relevant to diverse groups (Unger et al., 2002). This brief review also captures the diverse methodology used in understanding the relationship between peer influence, substance use and acculturation. Some studies examined acculturation and peer influence using a one-dimensional measure of acculturation, while others studied peer influence and substance use among racially/ethnically diverse samples but failed to measure acculturation.

Purpose of the Present Study

In summary, substance use is a significant problem for adolescent youth in the U.S. Although research suggests that racial/ethnic minorities have higher substance abuse rates than their European American counterparts (Oetting & Beauvais, 1990), they remain an understudied population (Botvin et al., 2001). Acculturation, ethnic identity, and peer influence may be important variables that relate to racial/ethnic minority youth. However, there is a paucity of research investigating these variables and their relationship to substance abuse among diverse samples of ethnic minorities. Further, the studies that have been conducted demonstrate conflicting results. For example, there is research demonstrating how these variables can be a protective factor against drug use and

associated problems. At the same time, other research has identified these variables as risk factors.

Many studies on acculturation have examined Latinos and, in particular, Mexican American adult populations (Bauman, 2005). However, these studies have used disparate acculturation models (e.g., uni- versus multidimensional) to examine this phenomenon as it relates to particular racial subgroups of adolescents. By using a multidimensional model and focusing on a multicultural sample of adolescents, this research contributes to the literature by building upon and clarifying previous inconsistent findings. Therefore, the present study adds to the extant literature by investigating the role of acculturation, ethnic identity, and peer influence on mental health outcomes in a sample of culturally diverse middle school students. Specifically, this study examined the following questions and hypotheses:

1. How do individual levels of acculturation correlate with the two different mental health outcome variables of depression and self esteem?
   H: The *marginalization* strategy will be associated with higher reported symptoms of depression, and lower levels of self-esteem. The *integration* strategy will be associated with lower reported symptoms of depression, and higher levels of self-esteem.

2. How does ethnic identity correlate with the two different mental health outcome variables?
   H: High scores on the ethnic identity *affirmation and belonging* subscale will be associated with positive mental health outcomes (e.g., lower reported symptoms of depression, and higher levels of self-esteem).

3. Does acculturation level and ethnic identity predict reported substance use?
   H: Acculturation level (e.g., integration strategy) and ethnic identity (e.g., affirmation and belonging subscale) will predict lower levels of reported substance use.

4. Does peer influence mediate the relationship between acculturation and reported substance use?
   H: Peer influence will mediate the relationship between acculturation (e.g., marginalization and integration) and substance use.

CHAPTER II

METHODS

Participants

This study used data collected at one public school and two charter schools in the Rocky Mountain region of the United States. These schools were selected because of the diversity of the communities in these school districts. Of the 1,224 students invited to participate in this research, only 189 middle school students completed the survey. This equals a 16% response rate. Half the surveys were collected from the public school (53.4%) and half were derived from the two charter schools (46.5%). Participants ranged in age from 11 to 15 years old (grades sixth through eighth) and the majority were female (62.4%). Almost half of the participants were in the 6^{th} grade (49.7%). The ethnicity of the participants was reported as: 34.1% Multiracial, 33.5% Caucasian, 20.1% Hispanic, 2.2% Asian American, 2.2% African American, 1.1% Native American, and 6.7% Other. With respect to indicators of socioeconomic status, 37.1% of the participants indicated that their fathers had attended or completed college; of the number of fathers who completed college, 12.2% attended graduate or professional school after college. Participants' mothers' levels of education were slightly higher than the fathers' levels of education. For example, 46% of the participants indicated that their mothers had attended or completed college; of the number of mothers who completed college, 14.3% attended graduate or professional school after college. Table 1 displays frequencies and percentages of participant demographics.

Procedures

Following approval of the University of Utah Institutional Review Board and school districts, students attending the public middle school and two charter schools were recruited for participation in this study. I made efforts to establish and maintain support from school personnel. For example, prior to the start of the study, a meeting was scheduled with school personnel to request their support and provide study information such as purpose of the study, proposed dates of questionnaire administration, anonymity of questionnaires, and open time dedicated to responding to questions and concerns related to the study and proposed procedures. An assurance to give general feedback to school personnel and parents was made explicit in this meeting. An active parental consent procedure was employed in this study. Parental consent forms in both Spanish and English and minor assent forms in English were distributed to the student body approximately two weeks prior to survey administration. Students were asked to return completed consent forms to their homeroom (i.e., first class period) teacher. Following the initial distribution of consent forms, the student body received one reminder notice to participate, with additional copies of both the consent and assent forms left with homeroom teachers. The reminder to turn in consent/assent forms was given through an intercom announcement at the end of the school day.

During the core survey administration, homeroom teachers received an information sheet with student names and their corresponding de-identified codes in order to distribute questionnaire packets to those students who had consented/assented to participate. Teachers also received a script that they used during the administration to deliver an introduction statement, answer questions, and facilitate the survey process

(Leeuw & Hox, 2008). In so doing, the teacher provided information to the students regarding the purpose of the study, a guarantee of confidentiality, and incentives for involvement (Leeuw & Hox, 2008). I administered the survey to those classrooms in which the teachers did not agree to read the script or administer the survey. The students who either did not have parental permission or did not give their assent to participate in the survey were asked to continue with their regular classroom assignments. So that students did not feel coerced to participate or distressed at not being allowed to participate, they were reminded that their participation would be voluntary and that, regardless of participation, they would be compensated for their time. They were also informed that they would not be penalized for early withdrawal.

Consenting participants were asked to fill out a questionnaire packet containing all measures. They were told to anticipate spending 25 minutes completing the surveys. Students submitted their completed survey packet in a large manila envelope to help ensure anonymity. I collected manila envelopes the same day the administration occurred and thanked participants. A second survey was administered approximately one week later to capture those students who were absent the first day of administration. In the event that a participant became upset answering questions, safeguards were in place should a student have become upset. All students received information regarding substance use prevention and intervention resources regardless of their participation or endorsement.

To say thank you and as an incentive for participation, a sandwich party was offered to the three (i.e., one for each grade level) classrooms with the highest number of returned consent/assent forms at the first administration site. Teachers in those

classrooms received a $50 gift certificate to local restaurants. Further, my internship supervisor agreed to provide the school district with a complimentary workshop/training that would be optional and held during a time that was most convenient for teachers. The incentive for the two charter schools was a chance to be entered into a drawing for a one of four $25 gift cards. Students who completed the survey were given a web address and asked to provide their name and e-mail. This information was kept separate from the survey data and was destroyed after the drawing and distribution of the gift cards. The teachers coordinating the survey administration both received a $25 gift card to Barnes and Noble.

Measures

A brief demographic measure was designed to record participants' gender, ethnicity, age, grade level, and parent education level. The variables of interest were examined using the following measures of diversity, mental health, peer influence, and self-reported substance use.

Acculturation. Two measures of acculturation were used. First, the Acculturation, Habits, and Interests Multicultural Scale for Adolescents (AHIMSA; Unger et al., 2002) is a relatively new acculturation measure for adolescents from multicultural backgrounds. The AHIMSA is an eight-item self-administered paper-and-pencil questionnaire which consists of four forced-choice response options that include the following categories: a) *The United States*, b) *The country my family is from*, c) *Both*, d) *Neither*. These response options correspond to the four acculturation strategies (Berry, 2005) of assimilation, separation, integration, and marginalization, respectively. A score was generated for each of the four strategies, ranging from 0 to 8. It is not possible to use all four orientation

scores as independent variables in the same regression model, because the fourth score always will equal eight minus the sum of the other three orientation scores, creating a linear dependence among the independent variables in the model (Unger et al., 2002). Thus, each participant was assigned a code according to his or her highest acculturation strategy.

Additionally, the AHIMSA assesses English language usage and generational status. English language usage items were adapted from the Brief Acculturation Scale for Hispanics (Norris et al., 1996) and included five questions with five response options: 5=*English only*, 4=*Mostly English*, 3=*English and another language*, 2=*Mostly another language*, and 1=*Another language only*. To determine generational status, three questions querying the respondent, respondent's mother, and respondent's father's place of birth were assessed using two response options: 1=*United States* and 2=*Other*. The AHIMSA was developed to address the growing need for an instrument that was inclusive of "brevity, age-appropriateness, multicultural relevance, and assessment of multiple components" (p. 228) for adolescents.

The validation process of this measure began prior to the start of a large-scale multicultural smoking prevention curriculum in southern California. A total of 13 middle schools identified as ethnically diverse consented to participate. The population sample included sixth graders (*N*=317) with an average age of 11.5 years, who were approximately half female (50.8%) and male (49.2%), who self-identified as: White (8.5%), African American (2.2%), Asian/Pacific Islander (19.2%), Hispanic/Latino (53%), Filipino (14.2%), other (1.3%), and no response (1.6%).

A revised version of the Acculturation Rating Scale for Mexican-Americans-II, (ARSMA-II; Cuellar, Arnold, & Maldonado, 1995) was used as a validation measure, as it is a standard instrument for measuring acculturation with Hispanics and has been used as a model from which other acculturation measures have since been developed (Unger et al, 2002). The AHIMSA was correlated with the ARSMA-II on three subscales: 1) *assimilation,* 2) *separation,* and 3) *integration,* and with English language usage and generational status. The *marginalization* subscale showed low variance and reliability. Results from the ARSMA-II also evidenced low reliability and suggested that this acculturation strategy may not yet be fully developed in early adolescence (Cuellar et al; 1995).

The Brief Acculturation Rating Scale for Mexican Americans (Brief ARSMA-II) is a shortened and age-appropriate adaptation of the Acculturation Rating Scale for Mexican Americans (ARSMA-II; Cuellar, Arnold, & Maldonado, 1995), which is a revised version of the original ARSMA (Cuellar, Harris, & Jasso, 1980). The Brief ARSMA-II is a 12-item bilingual measure that includes questions in both English and Spanish on the same page. Two scales represent the Brief ARSMA-II. Scale 1 (Anglo Oriented Scale) and Scale 2 (Mexican Oriented Scale) both consist of 6 items each. It is a self-administered paper-and-pencil questionnaire and consists of five forced-choice response options that range from *not at all* to *extremely often or almost always*. In addition, respondents could choose to answer in either English or Spanish.

Similar to the revised ARSMA-II, the Brief ARSMA-II response options correspond to the four acculturation strategies (Berry, 2005) of assimilation, separation, integration, and marginalization, respectively. The categories for the Brief ARSMA-II

include *assimilated*, *traditional*, *bicultural*, and *marginalized*. An acculturation score was obtained and used to determine an acculturation level according to specified cut off-points. The Orthogonal Identification Theory (Oetting & Beauvais, 1991) was used to develop the ARSMA-II measure. It was revised to accommodate the growing support and need for acculturation measures that are multidimensional.

The Brief ARSMA-II was validated as part of a larger research project on bullying with children and adolescents (Buaman, 2005). Two sample populations from southwestern communities/school districts that include a large Mexican population were studied as part of the reliability and validity process of this measure. Sample 1 included middle school (e.g., sixth-eighth grade) participants (*N*=292) who were approximately half female (58%) and male (42%) and who self-identified as: Latino (78%), White (7%), African American (2%), Asian American (1%), or Native American (2%). Of the participants, 12% of students chose to respond in Spanish. Sample 2 included participants (*N*=116) from four elementary schools (e.g., third-fifth grade) with the majority identifying as Latino (92%), followed by White (4%), African-American (2%), Asian American (1%), and Native American (2%), with about half being female (48%) and half male (50%). There was one school in the elementary school sample that included participants who lived in Mexico and had dual citizenship in the U.S. and Mexico. Results showed that acculturation levels differed between population samples.

Evidence of reliability for the Brief ARSMA-II was found for both samples. The internal consistency reliability using Cronbach's alpha was adequate for sample 1 (scale 1: α=.69; scale 2: α=.93) and sample 2 (scale 1: α=.75; scale 2: α=.84). Construct validity was assessed using the language chosen on the form and comparing it with the

acculturation categories. A significant correlation for the orthogonal acculturation type was found for both sample 1 (r = -.38, n=277, p<.01) and sample 2 (r = -.29, n=108, p<.01). Results showed that participants in sample 2 reported lower levels of acculturation compared to sample 1. These differences were expected, given the demographic and geographic differences between the samples.

Ethnic identity. The Multi-Ethnic Identity Measure (MEIM; Phinney, 1992) is a 14-item scale measuring four common aspects of ethnic identity (i.e., affirmation and belonging, ethnic identity achievement, ethnic behaviors, and other-group orientation) using a 4-point Likert-type scale, with response options ranging from *strongly agree* to *strongly disagree*. There are also six items that assess attitudes and orientation toward other ethnic groups, for a total of 20 items that compose this instrument. The MEIM appears to be a valid measure of ethnic identity among an ethnically diverse and young population sample. Phinney (1990; 1992) validated the measure on a sample of adolescents (N=417) with an age range between 14 and 19 (M=16.5 years) who were attending a high school and identified as ethnically diverse. Participants self-identified as: Asian American (n=134), African American (n=131), Hispanic (n=89), mixed background (n=41), White (n=12), or Other (n=10). Early undergraduate students (N=136) from a university identified as ethnically diverse were also included. The respondents had an age range between 18 and 34 (m=20.2) and self-identified as: Hispanic (n=58), Asian (n=35), White (n=23), Black (n=8), multiracial background (n=8), or American Indian (n=1). This measure demonstrated an overall high reliability for high school (α=.81) and college (α=.90) respondents. Furthermore, results showed no

statistically significant differences between the high school and college students except for ethnic identity achievement, where the college sample scored higher.

Peer influence. Consistent with other research, peer influence was measured using 10 items from the Peers Subscale of Project ALAS (ALAS; Florsheim et al., 2007). These researchers adapted the original scale to reflect adolescent perceptions of peer behavior instead of adult perceptions of peer behavior as the original scale intended. The items assess adolescent perceptions of peer behavior using 10 items with response options ranging from 1-*Often* to 5-*Don't Know*. Sample items include, "*My friends have a good influence on my behavior*" and "*I hang out with friends who smoke cigarettes*." Additionally, two items assessing current gang involvement from a research study by Voisin, Neilands, Salazar, Crosby, and DiClemente (2008) were added to this measure.

Mental health. Several measures assessing adolescent mental health functioning and substance use were given for self-administration, including measures of self-esteem, depression and substance use. Self-esteem was measured with the Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965), which is a 10-item Likert-type scale ranging in choices from *strongly agree* to *strongly disagree.* It is a one-dimensional measure of global self-esteem that has been found to be valid and reliable. For instance, McCarthy and Hoge (1982) conducted a longitudinal study of a large sample of seventh, ninth, and eleventh grade students (n=1,970) across 13 schools through a classroom administration. The RSE was found to be valid and reliable (α=.74) during the first year and one year post-administration (α=.77) with the original participants.

The Center for Epidemiology Studies Depression Scale (CES-D; Radloff, 1977) is a 20-item self-report measure that assesses current depressive symptomatology on a 4-

point scale with choices ranging from *rarely or none of the time* to *most or all of the time*. The CES-D was developed to measure symptoms of depression in the general population. The validation process included a structured 1-hour interview conducted in the home of adult respondents, and it also correlated with well-established measures of depression and mental health functioning (Radloff, 1977). The CES-D has also been validated with a diverse sample of adolescents (Crockett et al, 2005) and has been widely used with adolescent populations (Franko et al, 2005; Lewinsohn et al, 1993). The CES-D has good validity and reliability (α=.84).

The Drug Use Inventory (DUI) is a substance use scale that assesses current and lifetime substance use. This scale was modified from the National Youth Survey (Elliot et al., 1989) by a group of researchers in the psychology department at the University of Utah. It is a 15-item scale that asks respondents to indicate on how many occasions they have used different substances on a scale ranging from 0-30+. Similar indices of substance use have been previously found to be adequately valid and reliable (Elliott et al., 1989; Johnson, Wish, Schmeidler, & Huizinga, 1991; Winters et al, 1999).

Design

Nonexperimental survey research methods were employed in this study to examine the influence of acculturation, ethnic identity, and peer influence on the mental health of children and adolescents. This study was conducted at one public school and two charter schools. A prenotification, prior to the initial request for participation, followed by a reminder, was used in accordance with the Tailored Design Method developed by Dillman (2000). This design is based on social exchange theory, which is aimed at increasing the perceived benefits and decreasing perceived costs for completing

a questionnaire (Dillman, 2000). This survey design was also chosen because it was cost-effective and convenient for respondents.

Analyses

Descriptive statistics were calculated for all study variables and presented in table format. The research questions in this study correspond to the two major independent variables of interest, acculturation and ethnic identity. Two separate ANOVAs addressed the first research question, "How do individual levels of acculturation correlate with the two different mental health outcomes?" Specifically, these separate two-way ANOVAs tested the dependent variables of self-esteem and depression at the four acculturation levels of assimilation, separation, integration, and marginalization by gender. Two planned comparisons examining specific levels of the independent variable were also conducted.

The second research question, "How does ethnic identity correlate with the two different mental health outcomes?" was addressed with separate 2x3 ANOVA tests. These separate two-way ANOVAs tested the dependent variables of self-esteem and depression with the ethnic identity subscale by gender. Post-hoc analyses were conducted to further examine the relative influence of individual ethnic identity subscales.

The third research question, "Do acculturation level and ethnic identity predict reported substance use?" was addressed using a regression statistic. Acculturation and ethnic identity served as the two predictor variables, and reported substance use served as the dependent variable. An R^2 value was reported on the total variance accounted for by acculturation and ethnic identity, and β weights reported on unique variance accounted for by each. A hierarchical regression was used for understanding the relationship

between acculturation, ethnic identity, and substance use. To control for socioeconomic status, this variable was entered into the model first. A stepwise regression followed to determine which variables contributed the most unique variance (Heppner, Kivlighan, & Wampold, 1999). Separate analyses were run to examine differences in ethnic group and grade level.

The fourth research question, "Does peer influence mediate the relationship between acculturation and reported substance use?" was analyzed by testing for mediation through a sequence of regression analyses (Baron & Kenny, 1986). Acculturation served as the predictor variable, peer influence as the mediator and substance use as the criterion variable. Baron and Kenny (1986) clarify that, "mediators explain how external physical events take on internal psychological significance" (p. 1176). This mediation analysis was carried out following a series of steps outlined by Baron and Kenny (1986). First, peer influence (mediator) was regressed upon acculturation (independent variable). Next, substance use (dependent variable) was regressed upon acculturation. Lastly, substance use was regressed on both acculturation and peer influence. These researchers explain that each regression equation is a link in the chain of the mediation model.

In addition, post-hoc analyses were conducted. Specifically, the four primary independent variables were examined to see if they correlated with one another.

Table 1

Frequencies and Percentages for Participant Demographics

Demographic	*n*	%
Gender		
Male	71	37.6
Female	118	62.4
Age		
11	42	22.2
12	73	38.6
13	54	28.6
14	19	10.1
15	1	0.5
School		
Public	101	53.4
Charter 1	36	19.0
Charter 2	52	27.5
Grade		
6th	94	49.7
7th	39	20.6
8th	56	29.6
Father Education		
Completed grade school or less	6	3.2
Some high school	13	6.9

Table 1 Continued

Frequencies and Percentages for Participant Demographics

Demographic	*n*	%
Completed high school	35	18.5
Some college	30	15.9
Completed college	40	21.2
Graduate or professional school after college	23	12.2
Don't know	42	22.2
Mother Education		
Completed grade school or less	2	1.1
Some high school	14	7.4
Completed high school	32	16.9
Some college	41	21.7
Completed college	46	24.3
Graduate or professional school after college	27	14.3
Don't know	27	14.3
Generation		
First generation	8	4.3
Second generation	45	23.9
Third generation	135	71.8
Ethnicity		
Asian American	4	2.2
Black or African American	4	2.2

Table 1 Continued

Frequencies and Percentages for Participant Demographics

Demographic	*n*	%
Hispanic	36	20.1
White or Caucasian	60	33.5
American Indian	2	1.1
Multiracial	61	34.1
Other	12	6.7

CHAPTER III

RESULTS

Descriptive Statistics

Frequencies and percentages of substance use are presented in Table 2. Note that the data collection sites requested that only lifetime prevalence rates be gathered and that no questions regarding current substance use be asked. Therefore, data are presented dichotomously as "Never Tried" or "Tried at Least Once." Overall, 43.9% of the middle school students in this sample reported that they have tried an illicit substance at least once. Of the students who tried an illicit substance at least once, alcohol appears to be the most popular (22.2%), followed by inhalants (18.5%), downers (13.2%), prescription medication (10.6%), marijuana (9%), cigarettes (8.5%), and uppers (6.9%). Cigars, chewing tobacco, cocaine, tranquilizers, heroin, and ecstasy were the least reported substances tried or used, with each of these substances being endorsed by less than 5% of the sample. On average, if participants initiated substance use it has been with a single drug. However, when excluding those participants who have never tried a drug, the average shifts to approximately three drugs. The substance that was endorsed as having been used multiple times (i.e., more than once) was alcohol (14.3%).

Table 3 reflects substance use by race/ethnicity. Almost 46% of the middle school students who indicated they were multiracial reported trying an illicit substance at least once compared to 41.7% of Caucasians, and 33% of Hispanics. Three of the four Asian American students and three of the four African American students reported trying

an illicit substance at least once. One out of two American Indian students reported trying an illicit substance at least once. One factor that complicates these results is that the category "multiracial" may include any combination of races/ethnicities. Students who self-identified their ethnicity as "multiracial" did not select any other ethnic category such as Hispanic or American Indian. Thus, results for any single racial/ethnic category may actually be underrepresented.

Means and standard deviations of the study variables are presented in Table 4. As reviewed previously, acculturation was measured using two different scales, the AHIMSA and the Brief ARSMA-II. A majority of the participants fit into the assimilation group (61.0%), meaning that the acculturation strategy for these participants is to abandon their culture of origin and seek out inter-group relationships. Twenty-six percent of the participants fit into the integration group (26.2%) meaning that the culture of origin and host cultures are both embraced. Additionally, the majority of participants reported speaking English, reading English, using English in their home, thinking in English, and having friends that speak English. Participants' scores on the Brief ARSMA-II ranged from -3.50 to 4.67 (M = 2.42, SD = 1.20). The mean score for this measure indicates that the participants had an overall average Brief ARSMA-II acculturation rating of S*trongly Anglo Oriented*.

Ethnic identity was measured using scores on the Multi-Ethnic Identity Measure (MEIM; Phinney, 1992). Participants' MEIM scores ranged from 1.29 to 3.93 (M = 2.86, SD = 0.58). Scores above 2.5 were considered "high" and scores below 2.5 were considered "low." Most of the participants had "high" ethnic identity scores (136,

72.0%) indicating that these students have begun to explore their ethnic identity and endorsed items related to ethnic identity as very important.

Means and standard deviations for the mental health variables were also calculated (Table 4). The Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965) has a range of scores from 0-30. Participants' scores on this measure ranged from 2 to 30 (M = 21.14, SD = 5.58). There are no discrete cut-off score; however, higher scores indicate higher self-esteem (Rosenberg, 1965). Thus, the participants' mean scores were within the normal range of self-esteem. The Center for Epidemiology Studies Depression Scale (CES-D; Radloff, 1977) scores potentially range from 0-60. Participants' scores on this measure ranged from 0 to 53 (M = 14.54, SD = 11.00). A cut-off score of 16 is used to indicate a need for further assessment for depression (Radloff, 1977). Thus, the participants' mean scores indicated a level of depression below the cut-off score.

Relationships Among Variables in the Study

A correlation matrix of the study variables for the total sample is presented in Table 5. Strong positive correlations were found between language spoken at home and generation status (r=.53, p<.01), meaning that as English is spoken more in the home, generation status tends to increase. Acculturation and language spoken (r=.5, p<.01) were also significantly correlated, suggesting that as acculturation increases, English language use tends to increase. As expected, the language subscales were also strongly correlated with one another, suggesting that the language one speaks, reads, thinks, and speaks with friends are strongly related. Similarly, the ethnic identity subscales were also strongly correlated.

As expected, depression was significantly negatively correlated with self-esteem, suggesting that as symptoms of depression increase, self-esteem tended to decrease. Peer influence and depression were moderately correlated (r=.44, p<.01), suggesting that as peer influence increases, depression tended to increase. Additionally, substance use was moderately correlated with peer influence (r=.40, p<.01) suggesting that as peer influence increases, substance use tended to increase.

Spearman correlations were also conducted to assess the relationships between the fathers' and mothers' education level and the research variables (self-esteem, depression, acculturation, and peer influence). Self-esteem and acculturation were positively correlated with fathers' level of education (r=.21, p<.01; r=.17, p<.05), suggesting that as fathers' education level increases, self-esteem and acculturation also increased. Peer influence was significantly negatively correlated with mothers' level of education (r= -.17, p<.05), suggesting that mothers' education level increased, peer influence tended to decrease. However, by Cohen's (1988) standards, these variables only have a weak relationship.

Research Question 1

How do individual levels of acculturation correlate with mental health outcomes?

In order to assess research question 1, two two-way ANOVAs were calculated to assess if there were differences in self-esteem and depression by gender and acculturation. The assumption of normality was assessed with Kolmogorov Smirnov (KS) tests prior to conducting the ANOVAs. The results of the tests were significant for depression scores, violating the assumption. The assumption of equality of variance was assessed with two Levene's tests. The test was significant for self-esteem, violating the

assumption. However, Pallant (2007) suggests that violations in the assumptions have little effect on Type I error with more than 30 participants. Because there were only three participants in the separation group, these participants were removed from the analyses. The acculturation groups analyzed included the integration, assimilation, and mixed-group acculturation strategies.

The results of the first two-way ANOVA for the main effect of gender on self-esteem were not significant, F (1, 176) = 0.80, p = .371, suggesting that there were no differences in self-esteem by gender. Additionally, the results of the two-way ANOVA for the main effect of acculturation group were not significant, F (2, 176) = 0.31, p = .732, suggesting that there were no differences in self-esteem by acculturation group. There were no significant results for the effect of the interaction of gender and acculturation either, F (2, 176) = 0.06, p = .943, suggesting that there were no differences in self-esteem by the interaction of gender and acculturation group. The observed power for the two-way ANOVA was 0.17. Results of the first two-way ANOVA are presented in Table 6. The results of the second two-way ANOVA for the main effect of gender on depression were not significant, F (1, 174) = 0.42, p = .516, suggesting that there were no differences in depression by gender. Similarly, the results of the two-way ANOVA for the main effect of acculturation group were not significant, F (2, 174) = 0.96, p = .384, suggesting that there were no differences in depression by acculturation group.

Further, the results of the two-way ANOVA for the effect of the interaction of gender and acculturation were not significant, F (2, 174) = 0.37, p = .690, suggesting that there were no differences in depression by the interaction of gender and acculturation

group. The observed power for the two-way ANOVA was 0.30. Results of the first second two-way ANOVA are presented in Table 7.

Research Question Two

How does ethnic identity correlate with mental health outcome variables?

In order to assess research question 2, two two-way ANOVAs were conducted. The assumption of normality was assessed prior to conducting the ANOVAs with Kolmogorov Smirnov (KS) tests. The results of the tests were significant, violating the assumption. However, Pallant (2007) suggests that the analysis is robust against the assumption if there are at least 30 participants for the analysis (there are over 30 in each analysis). The assumption of equality of variance was assessed with two Levene's tests. The tests were not significant for self-esteem or depression, meeting the assumption.

The results of the first two-way ANOVA for the main effect of gender on self-esteem were not significant, F (1, 183) = 2.42, p = .122, suggesting that there were no differences in self-esteem by gender. The results of the two-way ANOVA for the main effect of ethnic identity were not significant either, F (1, 183) = 0.01, p = .911, suggesting that there were no differences in self-esteem by ethnic identity. Additionally, the results of the two-way ANOVA for the effect of the interaction of gender and ethnic identity were not significant, F (1, 183) = 0.38, p = .539, suggesting that there were no differences in self-esteem by the interaction of gender and ethnic identity group. The observed power for the two-way ANOVA was 0.22. Results of the first two-way ANOVA are presented in Table 8.

The results of the second two-way ANOVA for the main effect of gender on depression were not significant, F (1, 181) = 0.68, p = .411, suggesting that there were no

differences in depression by gender. Further, the results of the two-way ANOVA for the main effect of ethnic identity were not significant, F (1, 181) = 0.05, p = .832, suggesting that there were no differences in depression by ethnic identity. Finally, the results of the two-way ANOVA for the effect of the interaction of gender and ethnic identity were not significant, F (1, 181) = 0.97, p = .326, suggesting that there were no differences in depression by the interaction of gender and ethnic identity group. The observed power for the two-way ANOVA was 0.27. Results of the second two-way ANOVA are presented in Table 9.

Research Question Three

Do acculturation level and ethnic identity predict reported substance use?

To examine research question 3, a logistic regression was conducted to assess if acculturation level and ethnic identity predicted substance use (*Tried at least once vs. Never tried*). Acculturation was dummy-coded and "mixed" was used as the reference variable. It is not possible to use all four AHIMSA acculturation orientation scores as independent variables in the same regression model, because the fourth score always will equal eight minus the sum of the other three orientation scores, creating a linear dependence among the independent variables in the model (Unger et al., 2002).

The results of the Hosmer and Lemeshow test showed that the overall model had an acceptable fit χ^2 (3) = 0.27, p = .965, indicating our model predicts values not significantly different from the observed values. Assimilation acculturation did not successfully predict substance use, B = -0.12, p = .808, odds ratio (*OR*) = 0.89. Integration acculturation did not successfully predict substance use either, B = 0.26, p = .627, odds ratio (*OR*) = 1.29. Further, ethnic identity did not successfully predict

substance use, B = -0.21, p = .554, odds ratio (*OR)* = 0.82. The null hypothesis cannot be rejected in favor of the alternative hypothesis. Results of the logistic regression are presented in Table 10.

Research Question Four

Does peer influence mediate the relationship between acculturation and reported substance use?

In order to assess research question 4, the Baron and Kenny method was proposed to determine if peer influence mediates the relationship between acculturation and substance abuse. Because substance use was classified as a dichotomous dependent variable (*Tried at least once vs. Never tried*) the Sobel Test was conducted. Scores on the Brief ARSMA-II served as the independent variable and an average of scores on the Peer Influence Scale was used as a measure of peer influence. To conduct the Sobel test, several regressions had to be conducted to generate beta weights and standard error values.

The results of the first regression of ARSMA-II acculturation (the independent variable) predicting peer influence (the mediator variable) were not significant, B = -.04, p = .200, suggesting peer influence is not a significant predictor of ARSMA-II acculturation. The results of the second regression between substance use (the dependent variable) and ARSMA-II acculturation (the independent variable) were not significant, B = 0.07, p = .599, suggesting no relationship between substance use and ARSMA-II acculturation. The results of the third regression between substance use (the dependent variable) and ARSMA-II acculturation (the independent variable) and peer influence (the mediator variable) were not significant for ARSMA-II acculturation (B = 0.17, p = .245),

but were significant for peer influence ($B = 1.99$, $p < .001$). The Sobel test was run using the results of these regressions. The result was not significant, $z = -0.86$, $p = .388$, suggesting that peer influence does not mediate the relationship between acculturation and reported substance use. Results of the regression and Sobel test are presented in Table 11.

Table 2

Frequencies and Percentages for Substance Use

Substance	*n*	%
Any substance		
Never tried	106	56.1
At least once	83	43.9
Alcohol		
Never tried	147	77.8
At least once	42	22.2
Cigarettes		
Never tried	173	91.5
At least once	16	8.5
Cigars		
Never tried	184	97.4
At least once	5	2.6
Chewing Tobacco		
Never tried	183	96.8
At least once	6	3.2
Marijuana		
Never tried	172	91.0
At least once	17	9.0
LSD		

Table 2 Continued

Frequencies and Percentages for Substance Use

Substance	*n*	%
Never tried	181	95.8
At least once	8	4.2
Cocaine		
Never tried	184	97.4
At least once	5	2.6
Uppers		
Never tried	176	93.1
At least once	13	6.9
Downers		
Never tried	164	86.8
At least once	25	13.2
Tranquilizers		
Never tried	187	98.9
At least once	2	1.1
Heroin		
Never tried	182	96.3
At least once	7	3.7
Prescription medication		
Never tried	169	89.4
At least once	20	10.6

Table 2 Continued

Frequencies and Percentages for Substance Use

Substance	*n*	%
Inhalants		
Never tried	154	81.5
At least once	35	18.5
Ecstasy		
Never tried	185	97.9
At least once	4	2.1

Table 3

Substance Use by Ethnicity

Ethnicity	*n*	%
Asian American		
Never tried	1	25
At least once	3	75
Black or African American		
Never tried	1	25
At least once	3	75
Hispanic		
Never tried	24	66.7
At least once	12	33.3
White or Caucasian		
Never tried	35	58.3
At least once	25	41.7
American Indian		
Never tried	1	50
At least once	1	50
Multiracial		
Never tried	33	54.1
At least once	28	45.9
Other		
Never tried	8	66.7
At least once	4	33.3

Table 4

Descriptive Statistics of the Measures for the Total Sample

Subscales	*Min*	*Max*	*M*	*SD*
AHIMSA				
Generation	0	2	1.68	0.55
AHIMSA				
Speak	1	5	4.21	0.91
Read	2	5	4.64	0.68
Home	1	5	4.29	1.00
Think	1	5	4.62	0.80
Friends	1	5	4.56	0.86
Brief ARSMA-II	-3.50	4.67	2.42	1.20
MEIM				
Ethnic Identity	1.29	3.93	2.86	0.58
Affirmation	0.25	4.00	3.23	0.68
Achievement	0.14	3.86	2.64	0.67
Behaviors	1.00	4.00	2.66	0.84
Other Group	1.17	4.25	3.30	0.53
DUI	0	157	5.50	16.36
RSE	2	30	21.14	5.58
CES-D	0	53	14.54	11.00
ALAS	1.46	4.62	2.56	0.52

Note. AHIMSA=Acculturation, Habits, and Interests Multicultural Scale for Adolescents; Brief ARSMA-II = Acculturation Rating Scale for Mexican Americans; MEIM = (Multi-Ethnic Identity Measure); DUI= Drug Use Inventory; RSE = Rosenberg Self-Esteem Scale; CES-D = Center for Epidemiological Studies-Depression Scale; ALAS=Peer Influence Scale.

Table 5

Correlation Matrix of Major Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	-															
2	.40**	-														
3	.41**	.67**	-													
4	.53**	.71*	.61**	-												
5	.41**	.53**	.59**	.55**	-											
6	.35**	.58**	.71**	.60**	.63**	-										
7	.00	.10	.10	-.01	.06	.13	-									
8	-.07	-.13	-.11	-.11	-.13	-.18*	-.54**	-								
9	.39**	.51**	.43**	.47**	.39**	.36**	.07	-.08	-							
10	-.32**	-.28**	-.28**	-.28**	-.23**	-.24**	.00	.05	-.31**	-						
11	-.22**	-.11	-.17*	-.16*	-.18*	-.15*	.11	-.08	-.25**	.78**	-					
12	-.26**	-.27**	-.28**	-.26**	-.19*	-.25**	-.08	.12	-.29*	.85**	.55**	-				
13	-.29**	-.23**	-.21**	-.25**	-.18*	-.24**	-.07	.01	-.25**	.70**	.46**	.50**	-			
14	-.03	-.06	-.05	-.08	.06	-.02	.06	.11	-.06	.25**	.12	.26**	.15*	-		
15	-.07	-.14	-.10	-.18*	-.14	-.23**	-.24**	.44**	-.10	.10	.06	.10	.10	.13	-	
16	-.04	.03	-.03	-.01	-.04	.04	.25**	.29**	.04	-.05	-.01	-.08	.01	.04	.40**	-

Note. * $p < 0.05$. ** $p < 0.01$. 1 = Generation. 2 = Language Speak. 3 = Language Read. 4= Language at Home. 5 = Language Think. 6 = Language Friends. 7 =Self-Esteem. 8 = Depression. 9 = Acculturation. 10 = Ethnic Identity. 11 = Affirmation. 12 = Achievement 13 = Behaviors. 14 = Other Group. 15 = Peer Influence. 16= Substance Use.

Table 6

Results for Two-Way ANOVA for Self-Esteem by Gender and Acculturation Group

Source	*SS*	*df*	*MS*	*F*	*p*	Partial η^2
Gender	24.26	1	24.26	0.80	.371	.01
Acculturation	18.85	2	9.42	0.31	.732	.00
Gender*Acculturation	3.52	2	1.76	0.06	.943	.00
Error	5315.18	176	30.20			

Table 7

Results for Two-Way ANOVA for Depression by Gender and Acculturation Group

Source	*SS*	*df*	*MS*	*F*	*p*	Partial η^2
Gender	48.93	1	48.93	0.42	.516	.00
Acculturation	221.76	2	110.88	0.96	.384	.01
Gender*Acculturation	85.89	2	42.95	0.37	.690	.00
Error	20063.84	174	115.31			

Table 8

Results for Two-Way ANOVA for Self-Esteem by Gender and Ethnic Identity

Source	*SS*	*df*	*MS*	*F*	*p*	Partial η^2
Gender	75.40	1	75.40	2.42	.122	.01
Ethnic identity	0.39	1	0.39	0.01	.911	.00
Gender*Ethnic identity	11.84	1	11.84	0.38	.539	.00
Error	5708.89	183	31.19			

Table 9

Results for Two-Way ANOVA for Depression by Gender and Ethnic Identity

Source	*SS*	*df*	*MS*	*F*	*p*	Partial η^2
Gender	82.25	1	82.25	0.68	.411	.00
Ethnic identity	5.45	1	5.45	0.05	.832	.00
Gender*Ethnic identity	117.34	1	0.97	0.97	.326	.01
Error	21882.66	181	120.90			

Table 10

Logistic Regression with Acculturation (Assimilation, Integration vs. Mixed) and Ethnic Identity (High vs. Low) Predicting Substance Use (Tried At Least Once vs. Never Tried)

Source	*B*	*SE*	Wald (1)	*p*	*OR*	95% CI
Acculturation (reference: Mixed)						
Assimilation	-0.12	0.49	0.06	.808	0.89	[0.34, 3.31]
Integration	0.26	0.53	0.24	.627	1.29	[0.46, 3.62]
Ethnic Identity	-0.21	0.35	0.35	.544	0.82	[0.41, 1.60]

Table 11

Results for Sobel Test with Peer Influence Mediates the Relationship Between Acculturation and Substance Abuse

DV	IV	*B*	*SE B*	Test Statistic	*p*
Peer Influence	Acculturation	-0.04	0.03	-1.29*	.200
Substance Use	Acculturation	-0.42	0.34	0.28**	.599
Substance Use	Acculturation	0.17	0.15	1.35**	.245
	Peer Influence	1.99	0.41	23.16**	.001
Sobel Test Results				-0.86***	.388

Note. DV = Dependent variable. IV = Independent Variable. * *t* statistic. ** Wald statistic. *** *z* statistic.

CHAPTER IV

DISCUSSION

It has been well documented that substance use is a significant health problem among adolescents. The effects of use at this young age produce a myriad of negative outcomes for the individual and society. Experimentation and use of more dangerous classes of drugs are typically preceded by alcohol, tobacco, and marijuana – the gateway drugs. Further, few adolescents perceive risk in trying a substance once or twice. However, early substance use has been linked to later substance use and other problematic behaviors in late adolescence and early adulthood. Research indicates that certain populations of adolescents may be at an even greater risk for substance use. Therefore, it is increasingly important to understand the risk and protective factors of substance use to inform prevention and intervention strategies.

The purpose of this study was to examine the impact of acculturation, ethnic identity, and peer influence on substance use and mental health factors such as depression and self-esteem in a sample of early adolescents. Given the results of previous research studies, the first hypothesis was that students who feel marginalized or separated would have higher reported use of substances, higher reported symptoms of depression, and lower levels of self-esteem. Conversely, students who feel assimilated or integrated would have lower reported use of substances, lower reported symptoms of depression, and higher levels of self-esteem. A second hypothesis was that students who have a

stronger ethnic identity (as measured by affirmation and belonging) would have lower reported use of substances, lower reported symptoms of depression, and higher levels of self-esteem. A third hypothesis was that the integration strategy and ethnic identity (as measured by affirmation and belonging) would predict lower levels of substance use. The final hypothesis was that peer influence would mediate the relationship between acculturation and substance use.

Three major conclusions may be drawn from this study. First, middle school students report trying and using illicit substances at rates similar to those found in samples of high school students. Second, neither high levels of acculturation nor a strong ethnic identity served as a protective factor against substance use. Conversely, neither low levels of acculturation nor a weak ethnic identity served as a risk factor for substance use. Finally, although peer influence does not have any impact on the relationship between acculturation and substance use, it was significantly related to lifetime substance use. This discussion will focus on the results obtained in the present study, their relationship to previous research, possible limitations of this study, and implications for future research.

Adolescent Substance Use

Results indicate that substance use is a problem for participants in this study. Perhaps one of the most significant findings was that 43.9% of respondents reported trying an illicit substance at least once. Of those participants, 19.6% of participants tried many drugs, multiple times. This finding is higher than national data that shows lifetime prevalence rates of 20.1% for eighth graders and 37.7% for tenth graders (Johnston, O'Malley, Bachman, & Schulenberg, 2011). Specifically, the lifetime prevalence for this

sample is double the national rate for eighth graders and slightly above the rate for tenth graders. This finding was unexpected, given that 22.2% of the respondents were 11 years old (fifth grade) and 38.6% were 12 years old (sixth grade). As prevalence rates for this study were dichotomized as "never tried" or "tried at least once," this statistic may be inflated. It is possible that some of the participants tried a substance once and never used again; it is also possible that participants are using these substances on a regular basis. Future research should continue to ask participants to report 30-day, annual, and lifetime use of substances to gain more accurate data. Unfortunately, this was not possible in the current study. Schools administrators worried about the sensitive nature of the questions and asked that the wording on these questions be changed to reflect only lifetime use, because asking about current use would make the school legally responsible for providing services.

Cultural differences emerged in the data. For example, 61% of those who identified as a specific race/ethnicity (other than White) or who identified as multiracial endorsed initiating drugs and alcohol at a higher rate than their Caucasian peers (e.g., 42%). National data reporting annual prevalence rates for the three largest racial/ethnic subgroups indicate that Hispanic students reported higher use in the eighth and tenth grade than their Caucasian or African American peers. Given the large percentage of participants identifying as multiracial, it would be irresponsible to report use data comparing specific racial/ethnic categories. Thus, using a category such as multiracial gives students an alternate way to define themselves, but it makes it impossible to identify specific cultural differences. Although it might be tempting to force future

research participants to identify with one racial/ethnic category, that strategy overlooks the increasing degree of multiculturalism in our society.

The top three substances tried or used by survey participants included alcohol (22%), inhalants (18%), and downers (13%). This is inconsistent with national data that reports alcohol, tobacco and marijuana as the most popular types of experimental drugs (Johnston et al., 2011). These data likely reflects the substance use of choice for this predominantly pre- to early adolescent population. For example, inhalants are most common with pre- and early adolescents (Johnston et al., 2011) due to the fact that they are easily accessible household products such as aerosols and volatile solvents, and are relatively inexpensive (Johnston et al., 2011; NIDA: Inhalant Special Report, 2011). Respondents in this sample endorsed a lifetime prevalence inhalant use at a higher rate (18.5%) compared to the national sample of eighth (13.1%), tenth (10.1%), and twelfth (8.1%) graders (Johnston et al., 2011). It is possible that there may be regional differences in the U.S. for specific types of substance use. Further research may need to be conducted to tease out the reasons for this disparate finding.

Impact of Acculturation

This study attempted to address this first exploratory question: How do individual levels of acculturation correlate with depression and self-esteem? In order to examine this question, this study explored the relationship between scores on a multidimensional acculturation measure and scores on a depression and self-esteem scale. It was hypothesized that the *marginalization* strategy would be associated with higher reported symptoms of depression, and lower levels of self-esteem, and the *integration* strategy would be associated with lower reported symptoms of depression and higher levels of

self-esteem. Regardless of specific group, there were no statistically significant differences, meaning that levels of acculturation were not correlated with depression or self-esteem. Although no statistically significant differences were found, the majority of students identifying as Multiracial and Hispanic endorsed higher levels of depression compared to their Caucasian peers. One possible explanation for this finding is that Hispanic youth, regardless of acculturation status, are at higher risk for depression (Emslie et al., 1990). This could be due to social stress (Kaplan & Marks, 1990), perceived discrimination, racial microaggressions, and acculturative stress experienced by these youth. Perhaps, it is also the case that the strength of the associations between acculturation and depression depend on the broader context, such as geographic location or history of sociopolitical oppression in the region of the sample under study (Unger, 2011). For example, current history of immigration policies and laws in southwest border states may have incriminated visible ethnic and racial minorities.

Surprisingly, the average self-esteem score was within normal limits across groups. Other studies in the field of multicultural mental health have found significant relationships between acculturative stress and low self-esteem (Vega et al., 1993). Because this sample was predominantly composed of assimilated, English speaking, third generation participants, it is likely that participants were not experiencing degrees of acculturative stress that accompany less acculturated adolescents. Studies have found relationships between acculturation and higher levels of self-esteem (Sam, 2000; Valentine, 2001). It is also the case that adaptation to the dominant culture serves as a protective factor and decreases vulnerability. For instance, this sample had an either mostly assimilated or integrated acculturation orientation, which lends support to the

hypothesis that students were better adjusted overall than if they were in the marginalized or separated orientations (Berry, 2005).

It was also hypothesized that the integration acculturation strategy would predict lower levels of reported substance use. Contrary to what was predicted, the integration acculturation strategy did not successfully predict whether a participant had initiated substance use or ever tried a substance. This finding adds to the mixed results that currently exist in the literature. For example, some research has found that higher levels of acculturation are associated with decreased substance use (Fosados et al., 2007; Zamboanga, 2009) while other studies (Vega et al., 1993; Vega & Gil, 1998; Gfroerer & Tan, 2003; Coatsworth, Maldonado-Molina, Pantin, & Szapocznik, 2005) have found that high levels of acculturation are associated with increased substance use.

The role of gender was also considered in examining acculturation and mental health. Though significance was not found, the literature describes males and females experiencing acculturation differently due to differences in socialization (Valenzuela, 1999). For instance, females are thought to acculturate more quickly compared to males (Espin 1987), and this ultimately disrupts the traditional gender roles during this process (Sarmiento & Cardemil, 2009). However, more research is needed to clarify how gender affects the acculturation process (Pessar 1999).

Impact of Ethnic Identity

This study attempted to address a second exploratory question: How does ethnic identity correlate with depression and self-esteem? This question was analyzed by looking at the relatedness of scores between ethnic identity and scores on depression and self-esteem measures. It was hypothesized that the ethnic identity *affirmation and*

belonging subscale would be associated with positive mental health outcomes (e.g., lower reported symptoms of depression, and higher levels of self-esteem). It was found that ethnic identity and the affirmation and belonging subscale were unrelated to depression and self-esteem. These results are congruent with some research findings, but in general, the current literature exploring ethnic identity and self-esteem has yielded inconsistent findings (Phinney & Chavira, 1992). For instance, some studies have demonstrated a positive relationship between ethnic identity and self esteem (Phinney & Chavira, 1992; Phinney et al., 1997) while other studies have found a negative relationship (Willgerodt & Thompson, 2006) and yet others have found no relationship (Cavazos-Rehg & DeLucia-Waack, 2009).

A possible explanation for finding no relationship between ethnic identity and depression is that this young sample may not have been exposed to or given much thought to issues involving ethnic identity (Phinney, 1989). However, some researchers have hypothesized that an unexamined ethnic identity may serve as a risk factor for mental health issues such as depression and low self-esteem. For example, scholars in the field posit that a secure sense of self is the optimal outcome related to an achieved identity (Phinney, 1992). Phinney (1989) believes that an achieved identity requires a period of exploration, awareness of majority and minority status, and a desire to understand one's background. Yet another explanation of the data is that the school districts in the Rocky Mountain locations have high concentrations of students who are ethnically and racially diverse which might affect students' encounters with discrimination and their perceptions about minority status differently than communities that have majority Caucasian populations. Further, it is possible that the overall level of

depression might be caused by normal daily stressors experienced by pre- and early adolescent students (Costello et al., 2003; Saluja, Iachan, Scheidt, Overpeck, Sun, & Giedd, 2004). More research needs to be conducted to address contextual factors associated with multicultural enclaves such as those in regions in the southwest that have long and rich histories with diverse groups.

It is noteworthy to mention that despite the demographic characteristics of the sample, some aspects of ethnic identity in this study were robust. For instance, subscales of ethnic identity that produced the highest average scores included the Affirmation and Belonging and Other Group subscales. These results are congruent with other studies in the field that show that adolescents who feel positively and have pride about their cultural background also have feelings of acceptance towards groups that differ from their own (Phinney, 1989; Helms, 1990; Cross, 1991; Phinney, Ferguson, & Tate, 1997). It is also possible that these data, albeit non-significant, fits the contact theory, in that regular contact with a group increases positive attitudes toward members of that group (Miller & Brewer, 1984; Hewstone & Brown, 1986).

With respect to acculturation, research with Latino adolescents has shown that high levels of acculturation are associated with increased positive social interactions with non-Latino peers. Berry (2005) also postulates that in order to have an integrated acculturation orientation, both the dominant and nondominant groups need to be open and accommodating to live together as different cultural groups. Though the majority of the sample identified with the assimilated acculturation strategy, 20% of the sample identified with the integrated strategy. Thus, this might in itself serve as an indirect protective factor.

The role of gender was also examined in ethnic identity and mental health. No statistically significant associations were found with respect to gender. This contrasts with past research that has shown that adolescent girls have lower self-esteem and higher levels of depression than boys (Kling, Shibley Hyde, Showers, & Buswell, 1999; Nolen-Hoeksema & Girgus, 1994).

It was also hypothesized that the affirmation and belonging subscale of ethnic identity would be related to lower levels of reported substance use. The ethnic identity affirmation and belonging subscale were not associated with lower levels of substance use. Studies examining the role of ethnic identity and substance use have also failed to find a significant relationship between these variables (Bates, Beauvais, & Trimble, 1997; Willgerodt & Thompson 2006). This lack of association could indicate that other areas of growth are involved and perhaps taking precedence during this time. For example, peer relationships are likely more salient during this developmental stage compared to other competing areas of development. Given that acculturation and ethnic identity did not relate to substance use, the lack of associations indicates the importance of examining a multidimensional approach of acculturation with adolescents independent of substance use. In all, these data also indicates further exploration of ethnic identity in pre adolescence.

Peer Influence

This study examined a final question: Does peer influence mediate the relationship between acculturation and reported substance use? To examine this question, the relationship between scores on the Brief ARSMA-II acculturation measure and lifetime substance use were assessed, and overall peer influence was included to

determine its impact on the relationship. It was hypothesized that peer influence would mediate the relationship between acculturation and substance use. Peer influence was found to be positively related to substance use, but did not mediate the relationship between acculturation and substance use.

In accordance with the social cognitive theory (Bandura, 1986), these findings extend the literature that suggest that social influence via modeling and reinforcement is a key variable when examining health-risk behaviors such as substance use in adolescents (Bates, Beauvais, & Trimble, 1997; Botvin et al., 2001; Carvajal et al., 1997; Fosados et al., 2007; Oetting et al., 1998; Oetting & Beauvais, 1987; Segura et al., 2003; Thai et al., 2010). Research examining attitudes about substance use found that favorable attitudes toward drugs and alcohol were also associated with peer drug use (Saint-Jean, Martinez, & Crandall, 2008). These findings correspond to the literature that describes the power peer social networks play in the behaviors, values, and attitudes of adolescents (Berndt, 1999; Carbonaro, 1998; Duncan et al., 2001). Thus, given the data, peers seem to be a risk factor in adolescent substance use.

Limitations

A number of limitations impact the generalizability of the results of this study. The limitations include small sample size, the uncertain psychometric properties of the multidimensional acculturation measure, lifetime versus current drug and alcohol use, self-report response method, active parental consent, challenges in sampling minors and diverse populations, and conducting research in a school setting.

Perhaps the primary limitation of this study was the low response rate and small sample size, and as a result, inadequate power. Many efforts were made to try and

maximize the number of participants. For instance, developing strong rapport with the school principals, making daily school announcements, appearances at each school, reminder e-mails to school staff, giving a presentation to teachers during an in-service day, providing extra copies of consent forms to the student body to account for missing or lost forms, and extending deadlines for returning consent forms. As the data collection process progressed, so did the realities and limitations of conducting research in a school setting. The goal was to limit school staff workload and carry out the study with the least amount of disruption to classes. Despite these efforts, the schools preferred to directly inform students and distribute and collect consent forms. Carrying out a survey study that requires a two-step process (i.e., return of consent forms and survey administration) is challenging in secondary schools. Another limitation is response bias, which potentially influenced the type of students that agreed to complete the questionnaire packet and, ultimately, the total number of participants.

Additionally, this study was limited by psychometric properties of the AHIMSA acculturation measure and the psychometric issues in measuring four levels of acculturation (i.e., marginalization subscale). The AHIMSA acculturation measure was correlated on three of the four ARSMA-II subscales, and validation of the measure indicated that the marginalization subscale may be too advanced for adolescents. It also may be that adolescents are in a developmental stage that better reflects their identification with family members or other adult role models instead of choices that they are making based on their own exploration (Marcia, 1980; Phinney, 1993). Measuring acculturation, especially acculturation during adolescence is complex.

Another limitation is that only lifetime substance use was measured due to limitations imposed by school administration. Including measures of current substance use would more specifically target when use begins and help better identify appropriate age and grade levels to initiate prevention and intervention programming.

The self-report nature of this survey and the sensitive nature of this topic may have played a role in how participants responded to survey items. Although the survey was confidential, students may not have been as forthcoming with their responses to items related to substance use and negative peer associations. Students could still doubt the confidentiality of their responses to such items that would otherwise be risky to answer truthfully. Due to the potential social desirability of the responses, the validity of the survey should be considered when interpreting these results.

In addition, an active consent process was employed. The process of obtaining parental consent proved to be a difficult task and the consenting return rate was extremely low. It is unclear whether parents were overwhelmingly not giving their student permission to participate in the study or if the consent forms were not reaching parents altogether. Some parents might inaccurately believe that mere exposure to the topic of substance use could influence their child's substance use. Research regarding active and implied consent in school settings found that middle school students who are most at risk for health risk behaviors did not receive parental consent to participate in survey research (Unger et al., 2004). Few investigators include adolescents as participants in studies, in part due to the complexity of the Institutional Review Board (IRB) process and obtaining parental consent (Hester, 2004).

Another potential concern in recruitment was conducting research in school districts with a high number of ethnic and racial minorities and many families who are likely undocumented immigrants. The safeguards that were taken to ensure privacy of information were explained. This was especially important given that one of the questionnaires specifically asks about birthplace, which might raise concerns about families who are undocumented. However parents may still have been concerned about this question and not allowed participation. Recruiting participants of diverse backgrounds for research purposes is challenging (Heppner, Kivlighan, & Wampold, 1999). Because the target population of this study included ethnic and racial minority youth, it was even more important to clearly state the confidential nature of this research. An assurance was also given that no federal funding was received from an agency that might potentially request the data. However, these attempts still resulted in a low total number of participants.

Lastly, the process of research approval through a school district was a difficult task. Three applications were submitted over the course of 2 years in an effort to have this study accepted by a school's research review board. Many school districts already have rules in place to limit the number of applications and studies involving substance use or sex-related research. Plus, permission from the school district is only one level of permission needed. Once this study was accepted, approval from individual school administrators was another level of permission needed before proceeding. Because of the many levels of authorization, this was a difficult and time-consuming study to begin. Another limitation was that the public school and two participating charter schools were in relatively new school districts with staff that had limited experience with research and,

as a result, were more cautious and apprehensive about the study. Despite the research limitations, this research has a number of important clinical implications.

Clinical Implications

The results of this study contribute to the application of culturally-informed mental health services for adolescents. The cultural variables in this study, acculturation and ethnic identity, are specific mental health factors to address in designing substance use prevention and intervention programs for ethnic and racial minority youth (Carvajal et al., 2007). Although significance was not found between these major variables of study, the majority of students in this sample identified as non-White and endorsed having high ethnic identity. For example, school counselors could promote an understanding of ethnic identity development through the exploration of attitudes and feelings (Phinney, 1996) as a theme of prevention. The findings are important to clinicians and researchers who continue to make efforts in providing substance use prevention and intervention services that are relevant for multicultural populations.

The results of this study lend support to the important role clinicians can play in helping mitigate mental health problems early in school settings. There are 56 million children and adolescents enrolled in public schools (U.S. Department of Education, 2010). Although the majority of students attend public schools, a large majority of those students are not receiving mental health care (Crespi, 2009). However, psychologists and other mental health professionals are the first line of defense for youth in schools. Providing services that focus on mental health needs such as substance use, depression and self-esteem can be areas of focus initiated by these clinicians. Encompassing the

unique backgrounds of diverse students will further add to providing treatment that is culturally informed.

Given their role as "first-line responders," school counselors and other school-based staff need training in the area of multicultural counseling. Results of this study point to the need for counselor education programs to include curricula and practicum experiences that stress multicultural therapeutic approaches. A major critique of counselor education programs has been the failure to incorporate multicultural competence training in the overall instruction of mental health care to ethnic and racial groups (Ponterotto & Casas, 1987). Thus, a recommendation is to include the Sue et al. (1982) model of cross-cultural counseling competencies (i.e., awareness, knowledge, and skills) to serve as a foundation for such services in the schools. Using this model to address the unique mental health needs of minority students could be most impactful.

Another implication is that researchers and clinicians need to understand the current trends in substance use for majority and minority groups (Moon, Hecht, Jackson, & Spellers, 1999). Each year the substance of choice for experimentation differs slightly, and it also differs between age and ethnic and racial groups. Learning about these differences can help facilitate designing prevention programs that take into account potential cultural and regional factors in drug choice. Such programs would also benefit from targeting prevention rather than intervening at initiation of drug use, as this strategy has seen better results in reducing later substance abuse (Kandel, 1989).

Future Research

Based on the results of this study and a review of the literature, there seem to be four significant areas for future research. First, research should continue building on

using multidimensional measures of acculturation with adolescent populations. Using this measure to understand differences within cultural groups and in other non-clinical contexts is also recommended (Carvajal, 2007). Also, using this measure with older adolescent populations may help further understand the developmental implications of acculturation measures. Because of the inconsistency in the literature, it is recommended that these studies be conducted with more uniform methodologies (Rogler et al., 1991). Future research should also continue to identify how the broader context might be influencing individual acculturation and other factors associated with mental health problems in multicultural populations (Willgerodt & Thompson, 2006). Third, peer influence was significantly associated with substance use, which suggests that further research should be directed towards not only the individual, but the specific contexts that shape peer influence (Harachi, Catalano, Kim, & Choi, 2001). More research can focus on peer social networks to try and determine specific risk factors for these groups (Carvajal et al., 1997). Lastly, future research should also consider web-based surveys or a multimodal survey approach in the school system (Dillman, 2000). This would likely improve response rate and also be an added convenience for teachers, parents and students.

Conclusions

Understanding factors that predict substance use in middle school students is of theoretical and practical importance. Currently, the research literature on this topic spans more than 30 years. While there are numerous risk and protective factors identified, many questions still remain. This study was an attempt to build on previous empirical findings by scholars in the field (i.e., Brindis et al., 1995; Fosados et al., 2007;

Zamboanga et al., 2009) by examining the impact of acculturation, ethnic identity and peer influence on substance use, depression and self-esteem in a multicultural sample of middle school students. This study resulted in three major findings. First, the reported rate of lifetime substance use in this sample was double the national substance use rate for adolescents. Second, acculturation and ethnic identity were unrelated to substance use, depression, and self-esteem. Third, peer influence was significantly related to lifetime substance use, but did not mediate the relationship between acculturation and substance use. The results of this study are inconclusive and warrant additional research on substance use with early adolescents using multidimensional measures of acculturation. Further, exploration is required to assess the broader cultural context of acculturation and peer influence in predominantly diverse regions in the U.S. Despite research limitations, this study adds substantially to the field of multicultural research and provides important clinical implications for school personnel.

APPENDIX

SURVEY PACKET

Demographic Questionnaire

Please mark the response that best describes you:

1. What is your gender?
   - O Male
   - O Female

2. How old are you?
   - O 12
   - O 13
   - O 14
   - O 15
   - O 16

3. What grade are you in?
   - O 6^{th}
   - O 7^{th}
   - O 8^{th}

4. What is the highest level of education your father completed? (Please check one):

   O Completed grade school or less
   O Some high school
   O Completed high school
   O Some college
   O Completed college
   O Graduate or professional school after college
   O Don't know

5. What is the highest level of education your mother completed? (Please check one):

   O Completed grade school or less
   O Some high school
   O Completed high school
   O Some college
   O Completed college
   O Graduate or professional school after college
   O Don't know

The Acculturation, Habits, and Interests Multicultural Scale for Adolescents (AHIMSA)

Please use these response options to respond to the items below

a. The United States
b. The country my family is from
c. Both
d. Neither

Item	***a***	***b***	***c***	***d***
1. I am most comfortable being with people from…				
2. My best friends are from…				
3. The people I fit in with best are from…				
4. My favorite music is from…				
5. My favorite TV shows are from…				
6. The holidays I celebrate are from…				
7. The food I eat at home is from…				
8. The way I do things and the way I think about things are from…				

Please use these response options to respond to the items below

5=English only
4=Mostly English
3=English and another language
2=Mostly another language
1=Another language only

English language usage	**5**	**4**	**3**	**2**	**1**
1. In general, what language do you speak?					
2. In general, what language do you read?					
3. What languages do you speak at home?					
4. What language do you usually think in?					
5. What language do you usually speak with your friends?					

Please use response option 1) U.S.A or 2) Other to respond to the items below

Generational status	**1: U.S.A.**	**2: Other** (Please write name of country):
1. In what country were you born?		
2. In what country was your mother born?		
3. In what country was your father born?		

The Brief Acculturation Rating Scale for Mexican Americans-II
(Brief ARSMA-II)

Instructions: Please fill in the circle that best matches how often you do the following:

	Not at all/ Nada	Very Little/ Un Poquito o a Veces	Moderately/ Moderado	Very often/ Mucho o Muy Frequente	Almost Always/ Muchismo, Casi Todo el Tiempo
1. I speak Spanish. Yo hablo español.	O	O	O	O	O
2. I speak English. Yo hablo inglés.	O	O	O	O	O
3. I enjoy speaking Spanish. Me gusta hablar español.	O	O	O	O	O
4. I associate with Anglos. Me associo con Anglos.	O	O	O	O	O
5. I enjoy English language movies Me gust aver peliculas en inglés.	O	O	O	O	O
6. I enjoy Spanish language TV. Me gusta ver programas en la television que sean en español.	O	O	O	O	O
7. I enjoy Spanish language movies. Me gust aver peliculas en español.	O	O	O	O	O
8. I enjoy reading books in Spanish. Me gusta leer en español.	O	O	O	O	O
9. I write letters in English. Escribo (como cartas) en inglés.	O	O	O	O	O
10. My thinking is done in the English language. Mis pensamientos ocurren en el idioma inglés.	O	O	O	O	O
11. My thinking is done in the Spanish language. Mis pensamientos ocurren en el idioma español.	O	O	O	O	O
12. My friends are of Anglo origin. Mis amigos recientes son Anglo Americano.	O	O	O	O	O

Multi-Ethnic Identity Measure
(MEIM)

In this country, people come from a lot of different cultures and there are many different words to describe the different backgrounds or *ethnic groups* that people come from. Some examples of the names of ethnic groups are Mexican-American, Hispanic, Black, Asian-American, American Indian, Anglo-American, and White. Every person is born into an ethnic group, or sometimes two groups, but people differ on how important their *ethnicity* is to them, how they feel about it, and how much their behavior is affected by it. These questions are about your ethnicity or your ethnic group and how you feel about it or react to it.

Please fill in:

In terms of ethnic group, I consider myself to be: _____

Use the numbers given below to indicate how much you agree or disagree with each statement

4: Strongly agree	3: Somewhat agree	2: Somewhat disagree	1: Strongly disagree

1. I have spent time trying to find out more about my own ethnic group, such as its history, traditions, and customs. _____
2. I am active in organizations or social groups that include mostly members of my own ethnic group. _____
3. I have a clear sense of my ethnic background and what it means for me. _____
4. I like meeting and getting to know people from ethnic groups other than my own. _____
5. I think a lot about how my life will be affected by my ethnic group membership. _____
6. I am happy that I am a member of the group I belong to. _____
7. I sometimes feel it would be better if different ethnic groups didn't try to mix together. _____
8. I am not very clear about the role of my ethnicity in my life. _____
9. I often spend time with people from ethnic groups other than my own. _____
10. I really have not spent much time trying to learn more about the culture and history of my ethnic group. _____
11. I have a strong sense of belonging to my own ethnic group. _____
12. I understand pretty well what my ethnic group membership means to me, in terms of how to relate to my own group and other groups. _____
13. In order to learn more about my ethnic background, I have often talked to other people about my ethnic group. _____
14. I have a lot of pride in my ethnic group and its accomplishments. _____

Use the numbers given below to indicate how much you agree or disagree with each statement.

4: Strongly agree	3: Somewhat agree	2: Somewhat disagree	1: Strongly disagree

15. I don't try to become friends with people from other ethnic groups. _____
16. I participate in cultural practices of my own group, such as special food, music, or customs. _____
17. I am involved in activities with people from other ethnic groups. _____
18. I feel a strong attachment towards my own ethnic group. _____
19. I enjoy being around people from ethnic groups other than my own. _____
20. I feel good about my cultural or ethnic background. _____

21. My ethnicity is
    (1) Asian, Asian American, or Oriental
    (2) Black or African American
    (3) Hispanic or Latino
    (4) White, Caucasian, European, not Hispanic
    (5) American Indian
    (6) Mixed; parents are from two different groups
    (7) Other (write in): _____

Write in the number that gives the best answer to each question.

22. My father's ethnicity is (use numbers above) _____
23. My mother's ethnicity is (use numbers above) _____

Drug Use Inventory

Instructions: The purpose of this survey is to learn more about students' drug and alcohol use. Read each question carefully. Circle the number that best fits your level of use. Please remember that there are no right or wrong answers and that this survey is completely confidential.

1. How many times have you **had alcoholic beverages** (beer, wine or hard liquor) – more than just a few sips:

In your life?

0–1–2–3–4–5–6–7–8–9–10–11–12–13–14–15–16–17–18–19–20–21–22–23–24–25–26–27 28–29–30-30+

2. How many times have you **smoked cigarettes**:

In your life?

0–1–2–3–4–5–6–7–8–9–10–11–12–13–14–15–16–17–18–19–20–21–22–23–24–25–26–27–28–29–30-30+

3. How many times have you **smoked cigars**:

In your life?

0–1–2–3–4–5–6–7–8–9–10–11–12–13–14–15–16–17–18–19–20–21–22–23–24–25–26–27–28–29–30-30+

4. How many times have you **used chewing tobacco, snuff, or dip**:

In your life?

0–1–2–3–4–5–6–7–8–9–10–11–12–13–14–15–16–17–18–19–20–21–22–23–24–25–26–27–28–29–30-30+

5. How many times have you **used marijuana (bud, grass, pot) or hashish (hash, hash oil)**:

In your life?

0–1–2–3–4–5–6–7–8–9–10–11–12–13–14–15–16–17–18–19–20–21–22–23–24–25–26–27–28–29–30 30+

6. How many times have you **used LSD ("acid") or some other hallucinogen (e.g. mushrooms, PCP, Special K, ketamine)**:

In your life?

0–1–2–3–4–5–6–7–8–9–10–11–12–13–14–15–16–17–18–19–20–21–22–23–24–25–26–27–28–29–30-30+

7. How many times have you **used cocaine (e.g. coke, crack, rock)**:

In your life?

0–1–2–3–4–5–6–7–8–9–10–11–12–13–14–15–16–17–18–19–20–21–22–23–24–25–26–27–28–29–30-30+

8. How many times have you **taken uppers or speed (e.g. meth, bennies, dexies, pep pills, ice, diet pills, stay-awake)**:
In your life?

0–1–2–3–4–5–6–7–8–9–10–11–12–13–14–15–16–17–18–19–20–21–22–23–24–25–26–27–28–29–30-30+

9. How many times have you **taken downers or sleeping pills (e.g. Ambien) without doctor telling you to take them**:

In your life?

0–1–2–3–4–5–6–7–8–9–10–11–12–13–14–15–16–17–18–19–20–21–22–23–24–25–26–27–28–29–30-30+

10. How many times have you **taken tranquilizers (e.g. Librium, Valium, Miltown), without a doctor telling you to take them**:

In your life?

0–1–2–3–4–5–6–7–8–9–10–11–12–13–14–15–16–17–18–19–20–21–22–23–24–25–26–27–28–29–30-30+

11. How many times have you **used heroin (e.g. smack, horse, skag)**:

In your life?

0–1–2–3–4–5–6–7–8–9–10–11–12–13–14–15–16–17–18–19–20–21–22–23–24–25–26–27–28–29–30-30+

12. How many times have you **taken prescription medications (e.g. Lortab, Demerol, Oxycontin, Percocet) without a doctor telling you to take them**:

In your life?

0–1–2–3–4–5–6–7–8–9–10–11–12–13–14–15–16–17–18–19–20–21–22–23–24–25–26–27–28–29–30-30+

13. How many times have you **sniffed glue, breathed the contents of aerosol spray cans, or inhaled any other gases or sprays in order to get high**:

In your life?

0–1–2–3–4–5–6–7–8–9–10–11–12–13–14–15–16–17–18–19–20–21–22–23–24–25–26–27–28–29–30-30+

14. How many times have you **used Ecstasy**:

In your life?

0–1–2–3–4–5–6–7–8–9–10–11–12–13–14–15–16–17–18–19–20–21–22–23–24–25–26–27–28–29–30-30+

15. What **other drugs** have you used? Explain: _____
In your life?
0–1–2–3–4–5–6–7–8–9–10–11–12–13–14–15–16–17–18–19–20–21–22–23–24–25–26–27–28–29–30-30+

Rosenberg Self-Esteem Scale (Rosenberg, 1965)

Instructions: Below is a list of statements dealing with your general feelings about yourself. If you strongly agree, circle **SA**. If you agree with the statement, circle **A**. If you disagree, circle **D**. If you strongly disagree, circle **SD**.

SA = Strongly Agree; SD = Strongly Disagree

1. On the whole, I am satisfied with myself.	SA	A	D	SD
2.*At times, I think I am no good at all.	SA	A	D	SD
3. I feel that I have a number of good qualities.	SA	A	D	SD
4. I am able to do things as well as most other people.	SA	A	D	SD
5.*I feel I do not have much to be proud of.	SA	A	D	SD
6.*I certainly feel useless at times.	SA	A	D	SD
7. I feel that I'm a person of worth, at least on an equal plane with others.	SA	A	D	SD
8.*I wish I could have more respect for myself.	SA	A	D	SD
9.*All in all, I am inclined to feel that I am a failure.	SA	A	D	SD
10. I take a positive attitude toward myself.	SA	A	D	SD

Center for Epidemiologic Studies Depression Scale (CES-D), NIMH

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way **during the past week:**

	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
1. I was bothered by things that usually don't bother me.	O	O	O	O
2. I did not feel like eating; my appetite was poor.	O	O	O	O
3. I felt that I could not shake off the blues even with help from my family or friends.	O	O	O	O
4. I felt I was just as good as other people.	O	O	O	O
5. I had trouble keeping my mind on what I was doing.	O	O	O	O
6. I felt depressed.	O	O	O	O
7. I felt that everything I did was an effort.	O	O	O	O
8. I felt hopeful about the future.	O	O	O	O
9. I thought my life had been a failure.	O	O	O	O
10. I felt tearful.	O	O	O	O
11. My sleep was restless.	O	O	O	O
12. I was happy.	O	O	O	O
13. I talked less than usual.	O	O	O	O
14. I felt lonely.	O	O	O	O
15. People were unfriendly.	O	O	O	O
16. I enjoyed life.	O	O	O	O
17. I had crying spells.	O	O	O	O
18. I felt sad.	O	O	O	O
19. I felt that people dislike me.	O	O	O	O
20. I could not get "going."	O	O	O	O

Peer Influence

In the past 3 months, do you think that…

1. My friends have had a good influence on my behavior.

Often	*Sometimes*	*Hardly ever*	*Never*	*Don't know*
1	2	3	4	5

2. My boyfriend/girlfriend is a good influence on my behavior.

Often	*Sometimes*	*Hardly ever*	*Never*	*Don't know*
1	2	3	4	5

3. I have a hard time finding friends.

Often	*Sometimes*	*Hardly ever*	*Never*	*Don't know*
1	2	3	4	5

4. I get in arguments or conflicts with friends or acquaintances.

Often	*Sometimes*	*Hardly ever*	*Never*	*Don't know*
1	2	3	4	5

5. I get in arguments with my boyfriend/girlfriend.

Often	*Sometimes*	*Hardly ever*	*Never*	*Don't know*
1	2	3	4	5

6. I hang out with friends who get in physical fights.

Often	*Sometimes*	*Hardly ever*	*Never*	*Don't know*
1	2	3	4	5

7. I hang out with friends who steal.

Often	*Sometimes*	*Hardly ever*	*Never*	*Don't know*
1	2	3	4	5

8. I hang out with friends who smoke cigarettes.

Often	*Sometimes*	*Hardly ever*	*Never*	*Don't know*
1	2	3	4	5

9. I hang out with friends who regularly use alcohol.

Often	*Sometimes*	*Hardly ever*	*Never*	*Don't know*
1	2	3	4	5

10. I hang out with friends who regularly use marijuana.

Often	*Sometimes*	*Hardly ever*	*Never*	*Don't know*
1	2	3	4	5

11. I hang out with friends who regularly use other drugs.

Often	*Sometimes*	*Hardly ever*	*Never*	*Don't know*
1	2	3	4	5

12. I hang out with friends who get in trouble with the law.

Often	*Sometimes*	*Hardly ever*	*Never*	*Don't know*
1	2	3	4	5

13. I hang out with friends who are members of a gang.

Often	*Sometimes*	*Hardly ever*	*Never*	*Don't know*
1	2	3	4	5

14. I am currently a member of a gang.

Yes	*No*
1	2

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